DOCUMENT RESUME

ED 029 705 PS 001 939

Head Start Evaluation and Research Center, Tulane University. Annual Report.
Tulane Univ. of Louisiana, New Orleans. Head Start Evaluation and Research Center.
Spons Agency-Office of Economic Opportunity, Washington, D.C.
Pub Date 31 Aug 68
Note-83p.
EDRS Price MF-$0.50 HC-$4.25
Descriptors-*Annual Reports, *Compensatory Education Programs, Culturally Disadvantaged, *Educational Research, Language Arts, Moral Values, Nutrition, *Preschool Children, Program Descriptions, Programed Instruction, Program Effectiveness, *Program Evaluation, Reading Readiness
Identifiers-Gates Reading Readiness Test, *Head Start, Lee Clark Readiness Test, Murphy Durrell Analysis

To measure the effects of group programed instruction on aspects of reading in Head Start children, the Sullivan Associates Readiness in Language Arts series was used with approximately 15 children in each of five Head Start classes. An equal number served as controls. Pretests and posttest were Lee-Clark Readiness Test, Murphy-Durrell Analysis, and Gates Reading Readiness Tests. Data provided evidence that the experimental groups had greater achievement in (1) recognition of letter symbols, (2) identifying names of letters, and (3) familiarity with numbers and printed letters of the alphabet. The control groups made greater advances in (1) both simillarities and differences in word formation, (2) learning more words in one day under standard conditions of presentation, and (3) being able to understand oral instructions and sensitivity to sounds of words. Studies are underway in three more areas: moral judgement in young children as a function of selected abilities, behavioral correlates of nutritional states in young children, and conditions under which Head Start's benefits to children and families are maximized. Procedures are outlined for these projects. (NT)

ED029705

F-OEO

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

TULANE UNIVERSITY

HEAD START EVALUATION & RESEARCH CENTER

Report as of August 31, 1968

TABLE OF CONTENTS

The 1967-1968 Evaluation 1

Goals 2

Sampling 4

Testing and Data Collection 7

Center Descriptions 8

Resume & Vita--Evaluation 15

Research--Dr. Shuell H. Jones
Center Director 23

Vita--Research 32

Preliminary Report--Project I 44

Preliminary Report--Project II 63

SHUELL H. JONES, ED.D.

Center Director

Annual Report

August 31, 1968

PS001939

THE 1967-1968 EVALUATION

The 1967-1968 effort of Tulane Evaluation and Research Center has been directed toward obtaining accurate information concerning the interactions of various controllable and accidental stimuli affecting Head Start children, their families, and communities in a three-state area. What happened before the child encountered Head Start? What happened during the Head Start program? Is there any combination of circumstances that might insure some success for the Head Start child in a school situation? Some aspects of the problem have been measured, identified, and although not solved, certainly acknowledged to be crucial in dealing with disadvantaged children.

#

GOALS

By some it has been called the "economic underground", by others the "inner city". Whatever the terminology one chooses to describe these cavaties of urban decay, one general aspect emerges to label them all--"isolated". The inner city is isolated from the more affluent segments of the city. The inaccessability of the "world of poverty" has made us recognize, here at our center, that not only is our task a difficult one, but one of great challenge as well. Here in New Orleans the greater proximity of the depressed area and the fact that the poor live often interspersed in small neighborhoods sandwiched between more well-to-do areas may lead one to deny the isolation theory. Immediate though it may be, the poverty neighborhoods are still hidden. Behind an array of tracks or a wall of warehouses these festering nuclei exist. Here paved roads disintegrate dramatically into rubble strips, fresh air is suddenly filled with the foul odors of garbage or factory waste gases. It is quite apparent, though it may be just around the bend, that one has entered another world.

Realizing that this world is unique beyond the apprehension of the senses is the functional theoretical pivot on which our center has operated. The poverty world not only has its unique external appearance, but there is a language of the poor, a psychology of the poor, and a separate world view of the poor. A measuring of these factors is what we have sought. We have, this year, constructed a more graphic account of the forces and problems of this world unto itself.

The investigation of environmental factors leads us to the core of our research and evaluation efforts: the child produced by this environment and how we can ameliorate this environment (Head Start) by giving the child experiences vital to the nature of his future growth. By accepting the premise that the child is nourished by his environment, we are actively pursuing the goals

Goals (continued)

outlined by the national evaluation. To this end we have addressed ourselves to the task of exploring "the relationships between program and population variations as determinants of the impact of the Head Start experience on the child's intellectual, social, personal and physical development and on his family and community." Specifically our program design has sought to uncover these conditions under which Head Start's benefits to children and families are maximized. The following report will describe the nature of the evaluation and research activities of the Tulane University Evaluation and Research Center of the year September 1, 1967 through August 31, 1968.

#

SAMPLING

The problem of choosing samples is two-fold. First, we must make the selection of sample centers, and secondly, we must make the selection of sample children.

In accordance with sampling guidelines, Head Start sites were selected within our prescribed region (Louisiana, Mississippi, and Alabama). In making our selections we attempted to introduce as many program variables as possible. Therefore, the centers selected will differ by population served (Caucasian or Negro), geographical location (urban or rural) and by administrative direction (Board of Education or Community Action Program).

In the metropolitan area of New Orleans, Head Start centers were jointly sponsored by the Orleans Parish Public School Board and by the New Orleans Community Action Program. In Mississippi the centers were sponsored solely by the Harrison County Community Action Program, and in Alabama the centers were sponsored by the Mobile Community Action Committee.

Four sites were selected in New Orleans, where the majority of the children were sampled. Site selection in New Orleans was complicated by the fact that only a few Head Start Centers were in operation during the day. Most of the centers convened between the hours of 3:00 PM and 7:00 PM, a factor which rendered thorough program examination infeasible. From the remaining options, centers operating between 12 noon and 3:00 PM, preference was given to those centers representing major target areas of urban decay. To further implement the investigation of program variability, a parochial school site was included with the public school sites. By reason of symmetry, two entirely Negro centers were offset by a predominantly White Head Start Center, and a fourth center in which the Negro-White representation were almost equal obtained the greatest diversification possible within the limitations of our options.

Sampling (continued)

While the New Orleans centers are typical of problems inherent in the metropolitan area, such as public housing units, cramped and isolated ghetto areas, the Mississippi evaluation samples demonstrate how geographical diversity may often dictate the given aspects of the poverty area. Two urban centers and one rural center have been chosen from the Mississippi coast line and its immediate inland territory. It should be noted that both of the urban centers are distinguished by their small populations (the largest barely exceeds 7,000 inhabitants) and a "small town" or village atmosphere. Exemplary of this fact is the city of Pass Christian, which unlike other gulf coastal cities has resisted undue commercialization and has thus far managed to retain much of the atmosphere of the old "South". For the purposes of this report the most significant phenomena related to the scope of poverty here are the factors of isolation and immunity from modernizing trends, which would seem to explain the degree of cultural deprivation existent.

Three urban sites were selected in Mobile, Alabama. One of these sites, though new considered urban, was formerly a rural area. The visible characteristics of the sites, therefore, tend to reflect some of the problems distinctive of the country. All three sites, in fact, are situated in a suburban atmosphere a quality general to the entire metropolis of Mobile, despite the fact that the city is industrially expanding the supports shipbuilding services on a par with other important sea ports. As a city of the "deep South" Mobile is still highly segregated and Negroes continue to be excluded from Caucasian community activities. This is, perhaps, the chief problem of the economic progress of a large segment of the poverty stricken.

In order to avoid over-sampling centers in one concentrated area, a "cluster" sample was picked for purposes of geographical distribution. Therefore, there

PS 001939

Sampling (continued)

are two "cluster" samples in New Orleans and one each in Mississippi and Alabama respectively.

The major problem in the selection of center sites was determining whether the children of these centers met the national criteria for inclusion in the sample. In all cases the criterion that sample children have no greater prior preschool experience than one summer Head Start was met.

In the Alabama region, the sample children tended toward the upper allowable limit in age because of the fact that no kindergarten exists in the area at public schools. Other centers leveled nearer the median.

The final sample consisted of ten centers--nine urban and one rural. There are a total of ten classes in the sample. Ten children were selected from each site making a total of 100 children in the sample: forty from Louisiana, thirty from Mississippi and thirty from Alabama. While the majority of the children are Negro, the male and female distribution is for the most part equal.

#

TESTING AND DATA COLLECTION

In order to insure that a sufficient length of time elapses between pretesting and posttesting, arrangements were made shortly after the opening of the centers in late October of 1967 for pretesting and procedures to begin. In relation to the O S C I and the S I O P pretesting began immediately upon the completion of tester training. Posttesting for the most part was conducted in late April and during the month of May, thereby securing the suggested time lapse of at least six months.

The following instruments were included in the 1967-1968 evaluation program:

O S C I------Classroom and Individual
S I O P
Characteristics of Teaching Staff
Class Composition (Description of Classroom)
Stanford-Binet Test
Inventory of Factors Affecting Stanford-Binet Test
Parent Interview
Master Data (Child Continuity)
O R F -- Cluster
Class Register

In all cases the same tester was used to administer the pre and the post tests. In addition, all testers were either formally qualified or given extensive training in the use of the instruments to be employed. Those persons administering the Stanford-Binet Test had been trained with formal graduate courses. The persons employed to administer those instruments requiring no special skills had educational backgrounds.

#

CENTER DESCRIPTIONS

As we have previously noted, centers were selected for program diversity. Beyond the differences already mentioned there are other salient contrasts of interest.

The major deviation among the centers stems from a variance of schedules. The Louisiana classes operate on a part-time schedule from 3:30 PM until 6:00 PM, or in fewer instances from 12:30 PM to 3:00 PM. The teachers for these classes teach all day in the public school and then extend their day be teaching in the Head Start Program. The Alabama and Mississippi Centers, however, have full day programs. This time element variable could certainly be expected to introduce differences in program content and curriculum input.

The structures of the centers are similar; each has a head teacher and a teacher aide. The general objective of the centers, that of preparing the child for kindergarten or first grade the following year, is also commonly shared by all the centers. Multiple differences are naturally to be encountered in program content, style, and orientation, in classroom environments, and most dramatically in teacher-pupil interactions. Differences also might be assumed in teacher-training orientation, in the perceived status of the teacher, and the relationship between the home and school. The head teachers and aides also represent different racial groups.

Centers

Grant CG0473: Danneel #2, New Orleans, La.
George Washington, New Orleans, La.
McDonogh #40, New Orleans, La.
St. Mary of the Angels, New Orleans, La.

Grant 3034-1: DeLisle, DeLisle, Mississippi
Handsboro, Handsboro, Mississippi
Father Sweeny, Pass Christian, Miss.

Grant 3231: Cottage Hill, Mobile, Alabama
Greater Morning Star, Mobile, Ala.
Toulminville, Mobile, Ala.

M-01-1 Danneel #2

Danneel is located in one of the poorest sections of the city. Largely industrial, the section is crisscrossed by the Illinois Central railroad. Most of the people live in between the array of tracks. The area is also dotted with lumberyards and warehouses. All of the residential dwellings are grim and bleak and are seriously deteriorated. Large portions of the roads are missing so that during a rain storm the roads become rivers of mud. Some of the roads are only tiny dead end gravel courts where untagged, mangy dogs, chickens and barefoot children run free.

The population has always been Negro and is fairly stable. Most of the men are employed as laborers. Very few of the adults have completed the eighth grade of school.

Danneel School is a large, rundown edifice built around a square concrete inner court. The Head Start classroom is housed in a new prefabricated building flanking the front of the school. The classroom is well lighted and well equipped and has central air-conditioning and heating. The class meets from 12:30 to 3:00 PM. The head teacher has her bachelor of arts degree and is certificated. In addition to the head teacher there is one teacher aide.

M-04-1 George Washington

The neighborhood being served by George Washington School was until recently made up of a stable populus of home owners. However, within the last decade the population has become increasingly transient. A low socio-economic group of people occupy the old homes which have been subdivided. There are no longer single dwellings. Often bath facilities are shared by residents of both sides of the subdivided home.

Center Descriptions

Generally speaking the neighborhood, and the river front especially, is a very rough section of the city of New Orleans. The Negro mothers, mostly without husbands, live on welfare or work in restaurants. The men are mainly employed as longshoremen, seamen, supermarket clerks, or work in the nearby cigar factory or sugar refinery.

M-02-1 McDonogh #40

The neighborhood of McDonogh #40 is by far the most deteriorated, and in most total disrepair of all the Head Start Centers being evaluated in New Orleans.

The population is considered to be stable. Many of the people live in homes which have been in the family prior to World War II. The children tend to marry within the community.

The men are principally employed as laborers and longshoremen. The women work as domestics, or in the nearby coffee plant. To make ends meet the husbands work at night and the women during the day. This family work pattern places much of the home responsibility on older children.

The chief problem for educators here is the retardation of linguistic abilities. This factor is enhanced by a general dearth of experiences. Many of the children have never left the area for a trip downtown. The retardation of linguistic abilities is, therefore, nurtured by having little to express as well as a pervasive reticence to articulate before a group, found in many of the children.

Head Start is housed in a relatively new prefabricated, oblong building. The one classroom is well lighted and equipped. The teacher is a graduate of Southern University and has had previous teaching experience in fourth grade. The aide passed the high school equivalency test at Tulane University. The class meets from 12:30 to 3:00 PM and the children are given lunch and a snack. For the most part children walk to the school as they live within a relatively short distance.

Center Descriptions

St. Mary of the Angels M-03-1

The neighborhood surrounding St. Mary of the Angels is in a better state of repair than most of the other Head Start neighborhoods. Many of the houses are small, shotgun affairs, but are better kept than houses in other depressed areas. The population is principally transient. Formerly an all White neighborhood, after the integration of the St. Mary's there was an exodus of White families, leaving a Negro to White ratio of 2 to 3. The enrollment of St. Mary's dropped from 1000 to 520 after the integration laws were put into effect.

The one Head Start classroom is situated on the third floor of the central building, a massive, unadorned brick edifice that is St. Mary of the Angels. The building was constructed in 1951. The classroom itself, although well-equipped was bare and uninteresting. The head teacher has received her bachelor of science from Dominican. There is one aide.

DeLisle -- M-06-1

The Delisle Center is located in a rural region considered to be one of the more seriously economically deprived and culturally depressed areas. The inhabitants of the area are very poor and not well educated. Most of the men work at the shipyard at Engles or are tenant or small-scale farmers. Predominantly Catholic, the area is also famous for its stills.

The building housing the DeLisle Head Start Center is a large converted house, situated in a clearing surrounded by thick forests of pine. The house has one large front room, with glossy wood floors, that was not being utilized at the time of this report. The two classrooms are situated in a tiny back room painted dark green and in a reconverted, attic-like second story, which is somewhat larger.

There are two head teachers and two aides. There is a large area suitable for playground which has not yet been fenced off.

Center Descriptions

Handsboro -- M-07-1

The Handsboro Center is located in a poverty area. The building, known as the Knights of Pithius Hall, is concrete block construction and has a total of 2,008 square feet with fenced in play area. Only the first floor of the building is used, and one large room partitioned off provided the three separate classroom areas. A small stage and storage rooms are among the assets of the building. Some of its less desirable aspects are the cement floor and a small kitchen.

Father Sweeny -- M-05-1

The children were pretested in the Clark Avenue Head Start Center, but since the pretesting have moved to 206 Soucio Avenue. The Father Sweeny Center is located in a neighborhood of small single dwellings in generally acceptable state of repair, approximately one mile removed from U.S. Highway 90 and the waterfront area of Pass Christian. It gives the impression of a rural school because it appears at the end of the cluster of houses and small grocery stores. It is situated in a clearing beyond the residences enclosed by cyclone fencing and shaded by several large oak trees.

The brick veneer classroom building has wide halls, asphalt floors, well ventilated. The Head Start classroom is of sufficient size to allow maximum freedom of activity. The physical plant is quite attractive and more than adequate.

Cottage Hill -- M-08-1

The Head Start classes are held in the Negro Baptist Church, a white frame structure in a small clearing surrounded by shadowy woods is well over a hundred years old. Once a rural area the site is now encircled by affluent White suburbs. Caucasians have pressed against the nucleus of an unusually stable population in the Negro community, the nucleus being comprised of Negroes who are the descendants of slaves. The unstable elements which have penetrated the nucleus are Caucasian poverty isolates interspersed among the suburban subdivisions.

The children are bussed in from as far as a 35 mile radius. The children tested are seven Negro and one White.

Greater Morning Star -- M-09-1

Located in the educational building of the Baptist Church, an old Negro congregation, the center's urban community evirons is unusually stable. Here the income bracket is expecially low; many of the families are on welfare and are housed in either the low-rent Roger Williams or Dixie Park housing projects.

The classroom situation is somewhat crowded. One large central room, with an uncovered concrete floor and a high ceiling is partitioned with room dividers about five feet high into three classrooms. The classrooms are arranged in succession, access to the third being gained by entrance from the second. The division "arrangement" magnifies the noise being made by the children, but on the other hand, keeps each classroom size at a more operative number unit than would be possible in one large classroom situation.

The third classroom is flanked by an open window exposing the kitchen, a source of additional noise and distraction for the members of the third classroom.

The fourth classroom is situated in a smaller adjoining cubicle, rather barren and undecorated.

The staff consists of one teacher for each classroom, one aide for each classroom, one volunteer for each, one cook, and one cook's helper.

Toulminville -- M-10-1

Toulminville Center is quartered in the Toulminville Methodist Church educational building, a wing of a modern brick edifice of box like construction. This urban area is one of the more transient ones having been the scene of a recent population upheaval. The small brick homes were originally inhabited by Caucasians who evacuated the area when the first few Negro families infiltrated the neighborhood five years ago. Now only a few Whites remain. The neighborhood shows few signs of delapidation and the small yards seem to be receiving attention. The Church itself is reflective of the population turnover, having changed from an all White to an all Negro congregation. The Church presently has two ministers, one Caucasian and one Negro.

The four classes are held in four separate rooms of equal size equally well equipped, well lighted and airy. The walls are freshly painted pale green brick blocks which have been regularly covered with colorful illustrations. The atmosphere is an extremely wholesome one. All four classrooms are on the first floor.

The head teacher has a bachelor of science from Auburn University in Family Life and Early Childhood Education, while the teacher of the sample classroom received her G.Ed. from Murphy. There are three full time teachers, three teachers' aides, one cook and one cook's helper.

#

RESUME

A. PERSONAL:

Dr. Shuell H. Jones
Director
Evaluation & Research Center
Head Start E & R Center
Tulane University
6823 St. Charles Avenue
New Orleans, Louisiana 70118

Area Code 504
865-7711 Ext. 236

Date of birth: September 20, 1917

Marital Status: Married
Two children

Residence: 5830 Albany Court
New Orleans, Louisiana
70114
504---367-5718

B. EDUCATION:

William Penn College, Oskaloosa, Iowa; B.A., 1941

State University of Iowa, Iowa City, Iowa; M.A., 1949
Major: Educational Administration

State University of Iowa, Iowa City, Iowa; Six-year specialist in Educational Administration, Certificate, 1952

University of North Dakota, Grand Forks, North Dakota; Ed.D., 1960
Major: Educational Administration

Dissertation: "A Survey of the Training of Public School Superintendents of Iowa and North Dakota with a Proposed Program for the Sixth-Year Specialist Certificate at the University of North Dakota"

C. EXPERIENCE:

1941 - 42
Public Schools, Bridgewater, Iowa, High School teacher

1942 - 45
U.S. Navy Lieutenant

1946 - 48
Public Schools, St. Ansger, Iowa, High School teacher

1949 - 51
Public Schools, Winfield, Iowa, Superintendent

1952 - 61
Public Schools, State Center, Iowa, Superintendent

1961 - 63
Public Schools, St. Louis County, Missouri, Jennings Senior High School, Principal

1963 - 66
Public Schools, Cook County, Illinois, Brookfield and LaGrange Park, Superintendent

1965 - 66
Visiting Professor, North Central College, Naperville, Ill.

1966 - 68
Director, Evaluation & Research Center, Center for Teacher Education, Tulane University, New Orleans, Louisiana

D. PROFESSIONAL AFFILIATIONS:

PHI DELTA KAPPA

AMERICAN ASSOCIATION OF SCHOOL ADMINISTRATORS

NATIONAL EDUCATION ASSOCIATION

LOUISIANA EDUCATIONAL ASSOCIATION

E. PUBLICATIONS:

"A Problem Solving Approach to Remedial Reading", Louisiana Schools, Volume XLIV, April, 1967, pp. 24-28

"Programmed Reading Report: So Far, So Good", Nation's Schools, Volume 78, Number 1, July, 1966, pp. 39-40

"Programmed Reading in the First Grade", Cook County Educational Digest, Volume 28, January, 1965, pp. 3-8

"Programmed Reading", Journal of Programmed Reading, Issue Number 3, June, 1965, pp. 10-16

Evaluation Personnel

Mrs. Helen Sands Paup
Administrative Assistant in
Charge of Child Development

Date of Birth: October 3, 1939

Education: California State College at Long Beach,
Los Angeles, California, B.A., 1962

Experience: Bixby Knolls, California, teaching pre-school children, Sept.-June, 1960-61.

Torrance Unified School District, Torrance, California, teaching First Grade, Sept. 1962-June, 1967.

Torrance, California, on the Superintendent Advisory Committee for primary grades, Sept.-June, 1966-67.

#

Miss Stephanie Merle Ashe, Observer

Date of Birth: May 28, 1943

Education: Sophie Newcomb, New Orleans, Louisiana, B.A., 1967
Sorbonne, Diplome
Academie des Beaux Arts
Studied painting privately with W.S. Hayter in Paris

Experience: Taught Arts and Crafts at Jewish Community Center to children in the 4th, 5th, and 6th grades
Painted portraits
1967-68 Pre and Post Parent Interviewing, New Orleans samples, E & R Center

#

Mrs. B. Louise Jones

O R F -- Cluster

Education: Parsons College

Experience: LaGrange Department of Special Education,
LaGrange, Illinois, three years
1966-67 ORF tester, E & R Center

Stanford Binet Testers

Rev. Joseph B. Tremonti, C.S.V.

Date of Birth: June 25, 1912

Education: Viatorian Novitiate, Lemont, Illinois, 1933-34

St. Viator College, Bourbonnais, Illinois, 1934-36

Loyola University, Chicago, Illinois, 1936-37, B.S.

Catholic University of America, Washington, D.C., 1937-41, four years of theology and M.A., Thesis: A Study of 100 Cases of Wayward Minors in the City of Detroit and Reclamation Methods Used.

University of Chicago, Chicago, Illinois, 1945-48

Temple University, Philadelphia, Pennsylvania, 1949-50 Doctor of Education in Secondary Education, Thesis: A Status Study of the Catholic Junior Colleges in the United States.

Loyola University, Chicago, Illinois, Honorary D.D., 1962

Experience: (Teaching experience)
High School - five years

De Paul University, Chicago, Illinois, 1947-48

University of Notre Dame, Notre Dame, Indiana, 1950

University of Detroit, Detroit, Michigan, 1950

Mount St. Mary's College, 1952-60, Professor of Education Chairman, Department of Education, Director of Guidance, Director of Reading Clinic, Member of Dean's Committee, Member of Faculty Library Committee, Chairman of Guidance Committee.

University of Dallas, Professor of Education, Director of Reading Clinic, Co-Chairman, University Self-Study, 1960-65

Fort Detrick, Frederick, Maryland, Instructor in Reading, 1965-57

St. Mary's University, Xavier, Kansas, 1957

Immaculate Heart College, Los Angeles, California, 1960-62

Stanford-Binet Testers (continued)

Scranton University, Scranton, Pennsylvania, 1961,
Academic Director for Executive Reading Institute,
Dallas, Texas.

Honorary Societies: Phi Gamma Mu-Epsilon Chapter
National Social Science Honor Society
Phi Delta Kappa-Zeta Chapter
National Education Honor Society
Listed in Who's Who in American Education
Listed in Who's Who for American-Italians
Served on evaluating committee for Middle States - 1959

Current Memberships in Professional Organizations:

- Texas College Teachers of Education
- Texas Personnel and Guidance Association
- American Personnel and Guidance Association
- American Association of College Personnel Officers
- National Reading Conference
- International Reading Association (Local and National Chapters)
- Louisiana and Mississippi Invitational Reading Association
- National Catholic Educational Association
- Phi Delta Kappa - Professional Fraternity for Men in Education
- American Association of School Administrators

Publications: Author of four books, sixteen syllabi, and fifty-two articles.

#

Dr. William Maurice Learn

Date of Birth: August 24, 1920

Education: Hardin-Simmons University, Abilene, Texas, B.A.

University of New Mexico, Albuquerque, New Mexico, 1950

San Francisco State University, San Francisco, California, 1956-57

Stanford University, Palo Alto, California, 1959-60

University of Southern Mississippi, Hattiesburg, Mississippi, 1966-67, Ed. D.

Stanford-Binet Testers (continued)

Experience: Louisiana State University, New Orleans, Louisiana
Elementary Education, 1965-66

Orleans Parish Schools, New Orleans, Louisiana, 5th and 6th grades, 1963 - present

Palo Alto, California Schools, 4th and 6th grades, 1960-63

Southern San Francisco Schools, 6th grade, 1956-59

Farmington, New Mexico Schools, 5th and 6th grades, 1952

Memberships: Phi Delta Kappa

Association for School Administration

California Teachers' Association

Publications: "Developing a Science Program for Elementary Schools"
Louisiana Schools, 1966, pp. 2

#

Mr. Donald Clark Paup

Date of Birth: April 2, 1939

Education: Graduate work, Tulane University, Ph.D. program Psychology

California State College at Long Beach, Graduate Work;
Secondary Teaching Credential;
Psychometry Credential.

Undergraduate, Occidental College, Pasadena, California

Experience: Three years, Secondary teaching, Compton High School, Compton California

Psychological testing students--three years to adults, Psychological testing, Veterans Hospital, Long Beach, California

#

Observers

O S C I and S I O P

Mrs. Virginia P. Danford
Pass Christian, Miss.

Education: Florida State University, B.S. in Social Welfare, 1951.

Experience: Three years, Teenage Program Director of YWCA, Ohio and New York
Three years, counselor Vermont State YWCA Summer Camp
Volunteer: YWCA, Girl Scouts, PTA, youth church work, cooperative nurseries, Red Cross, childrens' ward hospital, Troy, New York

#

Mrs. Patricia A. Feldhaus
Mobile, Alabama

Education: Miami University, Oxford, Ohio, B. A. in Speech.

Experience: Public Speaking
Community, Fraternal organizations: P T A, Spring Hill Women's Club, American Association of University Women.

#

Mrs. Pat Franklin
New Orleans, Louisiana

Education: Pratt Institute, New York, B.F.A. Fashion Design

Experience: Dress Designer
Substitute teacher for Genesis
Free-lance illustrator

#

Mrs. Shirley F. Powers
Pass Christian, Mississippi

Education: Tufts College, B.A.
M.S.S.W., Simmons College

Experience: Psychological Social Worker, Guidance Clinic, State of Vermont
Psychological Social Worker, Howard Family Service, Burlington, Vermont
Psychological Social Worker, Elizabeth Lund Home, Burlington, Vermont

#

Parent Interviewers

Mrs. Susie M. Easley
Mobile, Alabama

Educational Background:
Emily Brooks Academy, 1½ years
Dunbar High School, Mobile, Alabama
Emerson Elementary School, Mobile, Alabama

#

Mrs. Bertha L. Knight
Mobile, Alabama

Educational Background:
Alabama State College Branch, one year
Allen Institute High School
Toulminville Elementary

#

Mrs. Carol Smith
Mobile, Alabama

Educational Background:
Tampe College, Phoenix, Arizona, 1/2 year
St. Elmo High School, Mobile, Alabama
Cottage Hill Elementary School

#

Mrs. Edith Thomas
Pass Christian, Mississippi

Educational Background:
Completed 12th grade.

#

Effects of Group Programmed Instruction
on Aspects of Reading in
Head Start Children

Shuell H. Jones, Ed. D.

THE PROBLEM

Project Head Start experiences are intended to generate improvement in many factors of the preschool child's readiness to cope with the demands of education in the elementary school. In particular, the production of significant cognitive change is a salient objective of Project Head Start. An attempt was made to modify Head Start children's (a) general readiness for school learning, (b) specific readiness for reading, and (c) ability to name letters and recognize letter sounds; through introducing into experimental Head Start classes a structured "readiness in language arts" program designed to be used with preschool children.

SUBJECTS

The experimental subjects were five classes of pupils with approximately fifteen children per class. The five experimental classes were located in the Albert Owens School, Mobile, Alabama. The control group consisted of five classes of pupils with approximately fifteen children enrolled in each class. The control group was located in St. Vincent's School, Mobile, Alabama, The groups were comparable in that all the pupils in the experimental group were Negro and all the children in the control group were Negro with but one exception and this child was white. The experimental subjects lived in a public housing project and the control group came from apartments and individual residences from the opposite side of the city.

METHOD

Two groups of five classes each were selected and one group of five classes was randomly assigned to the experimental treatment condition. The five classes selected for the experimental treatment were located in the Albert Owens School. The five classes selected for the control condition were located in St. Vincent's School. Thus, in toto, approximately 150 Head Start children were involved in the study.

The treatment introduced into the experimental Head Start classes (and omitted from control classes) was Sullivan Associates new Readiness in Language Arts (Behavioral Research Laboratories) series. This series is constructed in accordance with widely understood principles of Skinnerian (or linear) programmed instruction and was administered by each of the five teachers to her class as a group activity. The Sullivan program of structured materials teaches such concepts as left and right, up and down, over and under, back and front, straight line, circle, and the various colors, letters of the alphabet, and various vowel-consonant phonic combinations. All of this and more is attempted through a systematic program of language concepts and skills introduced one-by-one, reviewed, repeated and regularly reinforced. The structured materials were presented approximately thirty minutes each day from March 4 through May 15th, to the experimental group.

Reading readiness was measured by administering the Lee-Clark Readiness Test (California Test Bureau), and the Murphy-Durrell Reading Analysis (Harcourt, Brace & World, Inc.). Reading ability was measured by means of the Gates Reading Readiness Tests (Teachers College Press, Columbia University). All of the forementioned instruments were administered to both groups as pre- and posttests.

Lee-Clark Reading Readiness Test one is Letter Symbols. The test measures ability to discern similarities in letter forms. Test two Concepts, measures each pupil's oral vocabulary, his understanding of concepts, his ability to follow directions, and his knowledge of meanings. Test three, Word Symbols, measures the ability to recognize both similarities and differences in letter and word formation, from the most simple types of gross differences to complex and minute variations. The Murphy-Durrell test has three parts: (1) Phonemes I and II measures the ability to identify separate sounds in spoken words. (2) Letter Names I and II measures how well the child can identify names of letters. (3) The Learning Rate Test determines the number of words that a child is able to learn in one day under standard conditions of presentation. The Gates Reading Readiness Tests is divided into five subtests: (1) Picture Directions, which measures the ability to listen to what the examiner is saying; ability to understand what is said, ability to remember for a short time what is said, and ability to grasp and make use of various important every-day words and concepts, ability to interpret illustrations, and the ability to employ all the above in executing directions. (2) Word Matching reveals the status of his word-preception knowledge and skill. (3) Word-Card Matching is another test of status in word perception. (4) Rhyming is a test of the child's familiarity with an sensitivity to the sound of phonic characteristics of words. (5) Reading Letters and Numbers is a test of the child's familiarity with the printed letters of the alphabet and the numbers 0 to 9.

ANALYSIS OF DATA

Simple analysis of covariance was employed to ascertain, from the pre- and post measures of the Lee-Clark Readiness Test, the Murphy-Durrell Reading Analysis and the Gates Reading Readiness Tests, if significant changes in reading readiness and the reading skills were associated with exposure vs. non-exposure to the experimental treatment.

Table 1. reports pre- and posttests means for the two groups on the three tests, by subtest and total test. The data show that the posttest means for the experimental group were significantly higher then those of the control group on:

Lee-Clark Reading Readiness Test--Part I Letter Symbols subtest,
Murphy-Durrell Reading Readiness Analysis--Part I Letter Names subtest,
Murphy-Durrell Reading Readiness Analysis--Part II Letter Names subtest,
Murphy-Durrell Reading Readiness Analysis--Total Test,
Gates Reading Readiness Tests--Letters and Numbers subtest,
Gates Reading Readiness Tests--Total Test.

Posttest means for the control group which were significantly higher than those of the experimental group were:

Lee-Clark Reading Readiness Test--Word Symbols,
Murphy-Durrell Reading Readiness Analysis--Learning Rate,
Gates Reading Readiness Tests--Picture Directions,
Gates Reading Readiness Tests--Rhyming.

The data seem to provide evidence that the experimental group had greater achievement in areas of (1) recognition of letter symbols, (2) identifying names of letters, and (3) familiarity with numbers and printed letters of the alphabet. It appears that the control group made greater advances in areas of (1) both similarities and differences in word formation, (2) learning more words in one day under standard conditions of presentation (3) being able to understand oral instructions and be sensitive to the sound of words.

TABLE 1.

Pre- and Posttest Means

	GROUP			
	EXPERIMENTAL		CONTROL	
Tests	**Pre**	**Post**	**Pre**	**Post**
Lee-Clark	N = 64		N = 56	
Letter Symbols	8.51	15.03*	8.64	13.08
Concepts	13.65	15.78	13.71	15.78
Word Symbols	4.98	8.67	3.60	10.17*
Total Test	27.15	39.48	26.14	39.05
Murphy-Durrell	N = 62		N = 75	
Phonemes I	7.04	9.83	8.20	10.68
Phonemes II	9.41	14.22	10.81	13.92
Letter Names I	5.96	14.01**	5.90	9.34
Letter Names II	5.08	15.04**	4.17	6.66
Learning Rate	5.30	6.16	4.24	7.06*
Total Test	32.83	59.29**	33.33	47.66
Gates	N = 63		N = 70	
Picture Directions	17.07	20.01	17.77	22.50*
Word Matching	5.96	7.74	5.31	6.82
Word-Card Matching	7.84	10.28	7.74	11.58
Rhyming	7.22	7.77	8.23	9.65*
Letters & Numbers	7.41	26.65**	5.55	11.64
Total Test	45.52	72.47**	44.67	62.22

* F-ratio obtained from analysis of covariance significant at or beyond .05 level.

** F-ratio obtained from analysis of covariance significant at or beyond .001 level.

#

CONCLUSIONS

The experiment originally was to commence in February, but the Head Start Center was forced to shut down during this month, due to a lack of funds. Being forced to conduct the experiment from March 4 through May 15th may have cut down on the effectiveness of the study, but ten significant performance differences out of sixteen measures provided dramatic results.

It appears that certain skills can be developed through the use of the structured materials, such as those used in this research study. These skills seem to be in the area of letter, word, and number discrimination; all of which are part of reading readiness.

The teachers and pupils involved in the experimental treatment expressed their enthusiasm for the material. This by-product alone seems to warrant further investigation.

In future investigations, careful attendance records should be maintained. This is an important and necessary control with respect to the internal validity of the research as it may be necessary to eliminate children from the analysis on the basis of non-attendance. Further supplementary analysis of the data could be performed, with data obtained from a program intervention experiment such as this, to determine the performance differences between urban-rural classes, between males and females, between programs provided by different sponsoring agencies (Boards of Education versus Community Action Programs), and between ethnic groups.

#

TABLE 2.

Summary of the Covariance Analysis of the Ss' Scores[a] on the Lee-Clark Reading Readiness

SUBTEST	SOURCE OF VARIATION	SUM OF SQUARES	df	MEAN SQUARE	F
Letter Symbols	Treatments	139.31	1	139.31	6.03*
	Error	2699.53	117	23.07	
	Total	2838.84	118		
	*significant at or beyond .05.				
Concepts	Treatments	.04	1	.04	.03
	Error	147.79	117	1.26	
	Total	147.83	118		
	F,NS				
Word Symbols	Treatments	153.60	1	153.60	5.36*
	Error	3352.98	117	28.65	
	Total	3506.58	118		
	*significant at or beyond .05.				
Total Score	Treatments	.15	1	.15	.0011
	Error	15252.71	117	130.36	
	Total	15252.86	118		
	F,NS				

[a] The Ss' pretest scores were designated as the concomitant or control measure.

#

TABLE 3.

Summary of the Covariance Analysis of the Ss' Scores[a] on the Murphy-Durrell Reading Readiness Analysis

SUBTEST	SOURCE OF VARIATION	SUM OF SQUARES	df	MEAN SQUARE	F
Phonemes Part I	Treatments	49.43	1	49.43	3.05
	Error	2165.84	134	16.16	
	Total	2215.27	135		
	F,NS				
Phonemes Part II	Treatments	33.71	1	33.71	1.37
	Error	3297.73	134	24.60	
	Total	3331.44	135		
	F,NS				
Letter Names Part I	Treatments	723.21	1	723.21	23.51**
	Error	4123.12	134	30.76	
	Total	4846.33	135		
	**significant at or beyond .001.				
Letter Names Part II	Treatments	2067.16	1	2067.16	57.10**
	Error	4851.15	134	36.20	
	Total	6918.31	135		
	**significant at or beyond .001.				
Learning Rate	Treatments	65.20	1	65.20	3.94*
	Error	2214.04	134	16.52	
	Total	2279.24	135		
	*significant at or beyond .05.				
Total Test	Treatments	4718.50	1	4718.50	16.46**
	Error	38413.00	134	286.66	
	Total	43131.50	135		
	**significant at or beyond .001.				

[a] The Ss' pretest scores were designated as the concomitant or control measure.

#

TABLE 4.

Summary of the Covariance Analysis of the Ss' Scores[a] on the Gates Reading Readiness Tests

SUBTEST	SOURCE OF VARIATION	SUM OF SQUARES	df	MEAN SQUARE	F
Picture Directions	Treatments	159.77	1	159.77	5.58*
	Error	3717.43	130	28.59	
	Total	3877.20	131		
	*significant at or beyond .05.				
Word Matching	Treatments	8.72	1	8.72	.81
	Error	1396.80	130	10.74	
	Total	1405.52	131		
	F,NS				
Word-Card Matching	Treatments	60.86	1	60.86	3.30
	Error	2398.38	130	18.44	
	Total	2459.24	131		
	F,NS				
Rhyming	Treatments	67.61	1	67.61	5.71*
	Error	1539.98	130	11.84	
	Total	1607.59	131		
	*significant at or beyond .05.				
Letters & Numbers	Treatments	14156.67	1	-4156.57	-19.63**
	Error	27513.53	130	211.64	
	Total	23356.96	131		
	**significant at or beyond .001.				
Total Test	Treatments	3046.98	1	3046.98	12.67**
	Error	31258.86	130	240.45	
	Total	34305.84	131		
	**significant at or beyond .001.				

[a] The Ss' pretest scores were designated as the concomitant or control measure.

REFERENCES

Behavioral Research Laboratories, Readiness in Language Arts, A Sullivan Associates Program, Palo Alto, California, 1967.

California Test Bureau, Lee-Clark Reading Readiness Test, Kindergarten and Grade 1, 1962 Revision, J. Murray Lee and Willis W. Clark, Monterey, California.

Harcourt, Brace & World, Inc., Murphy-Durrell Reading Readiness Analysis, Helen A. Murphy and Donald D. Durrell, New York, 1965.

Teachers College, Columbia University, Gates Reading Readiness Tests, Arthur I. Gates, New York, Revised 1942.

RESEARCH VITA

A. Dr. Jefferson Lewis Sulzer
Principal Investigator

Department of Psychology, Newcomb College, Tulane University
New Orleans, Louisiana 70118.

Birth: March 29, 1927

Marital Status: Married, 3 children

Education:
Elementary School: Philadelphia, Pa. and Cuthbert, Ga.
High School: Cuthbert, Ga., Graduated 1944
U.S.N.R.: 1944-1946, Pacific Area, SIC, Hon. Disch.
Commercial & Fine Art Schools: Houston, Texas and San Miguel de Allende, Gto., Mexico, 1946-1949.
A.B. Tulane University, 1960. Major: Psychology, Minor: Sociology.
M.S. Tulane University, 1961, Psychology
Ph.D. University of Florida, 1964.

M.S. Thesis: Arc versus place skills after guided and knowledge of results training. (Chairman, E.A. Bilodeau)

Ph.D. Thesis: Attribution of responsibility as a function of the structure, quality, and intensity of the event. (Chairman, M.E. Shaw)

Scholastic Honors and Awards:

Phi Eta Sigma, 1957
Aaron Hartmann Award in Psychology, 1960
Phi Beta Kappa, 1960
Woodrow Wilson Fellowship, 1960-1961
College Teaching Career Fellowship (Southern Fellowships Funds, 1960-1963
Graduate Fellowship, Univ. of Florida (Declined), 1963-1964
Graduate Fellowship, National Science Foundation, 1963-1964

Membership in Professional and Honorary Societies:

Phi Eta Sigma, Phi Beta Kappa, Psi Chi, Sigma Xi, American Psychological Association (Division of Personality and Social Psychology and Society for the Psychological Study of Social Issues), Southeastern Psychological Association, Campus Representative, Southwestern Psychological Association, Faculty Sponsor, local Psi Chi Chapter.

Employment:
Free lance artist and designer, 1949-1956
Graphic Presentationalist, Tulane University, (Dept. of Sociology and Anthropology), 1956-1959
Research Assistant, Tulane University, (Full time and summers), 1959-1961

Research Vita (continued)

Instructor (half time), University of Florida, 1963-1964
Assistant Professor, Newcomb College, 1964-1966,
(Elected to Graduate Faculty, 1965)
Associate Professor, Newcomb College, 1966-

Publications:

Manual Lever D; a basic psychomotor apparatus for the study of feedback. Perceptual Motor Skills, 1963, 16, 859-862.
Theory and data on the interrelationships of three factors of memory. (With E.A. Bilodeau and C.M. Levy) Psychological Monographs, 1962, 76, No. 20 (Whole No. 539)
Long-term retention under conditions of artificially induced recall of related events. (With E.A. Bilodeau and C.M. Levy) Perceptual Motor Skills, 1963, Monograph Supplement 8-V16.
An empirical test of Heider's levels in attribution of responsibility. (With M.E. Shaw) Journal of Abnormal and Social Psychology, 1964, 69, 39-46.
Chiropractic healing as psychotherapy. Psychotherapy, Research, Theory, and Practice, 1965, 2, 38-41.
A test for the effect of numerical magnitude of knowledge of results. (With C.M. Levy) Perceptual Motor Skills, 1966, 22, 311-316.
Goal and error training methods in the learning of a positioning response. (With C.M. Levy) Psychonomic Science, 1966, 6, 179-180.
Responsibility attribution, empathy, and punitiveness. (With Ruth Kloepfer Burglass) Journal of Personality (In Press)

Papers Presented at Professional Meetings:

Knowledge of results. Part I. Demonstration of a device for the investigation of motor skills. Louisiana Psychological Association, New Orleans, 1961.
Chiropractic Healing. Southeastern Psychological Association, Miami Beach, Florida-- 1963.
Heider's levels of responsibility attribution. Southeastern Psychological Association, Miami Beach, 1963.
An exploratory investigation of the effects of ethnic origins upon the attribution of responsibility. (With M.E. Shaw) Southeastern Psychological Association, Miami Beach, 1963.
Attribution of responsibility as a function of empathy and attitude toward the punishment of criminals. (With Ruth Kloepfer) Southeastern Psychological Association, New Orleans, 1966.
Psychological aspects of aggression. Invited Address, Joint Session, Southern Society for Philosophy and Psychology, New Orleans, 1966.

#

Research Vita

B. **Dr. Fredrick Walter Koenig**
Co-principal Investigator

Department of Sociology, Tulane University,
New Orleans, Louisiana 70118

Birth: August 23, 1927

Marital Status: Single

Military History: Army-Chemical Corps, 1945-1947

Education:
Washington University, A.B., 1951
University of Wisconsin, M.S., 1954
University of Wisconsin, Ph.D., 1961

Area of specialization for Ph.D., Social Psychology
Minor Field, Psychology
Outlying Field, Cultural Anthropology
Dissertation title: Perception of Order and Morale in Small Group Situations

Area of specialization for M.S., Social Psychology
Thesis title, M.S., An Experimental Study of Level of Aspiration and Probability of Success

Professional Association Memberships:

American Anthropological Association
American Psychological Association
Eastern Psychological Association
American Sociological Association

Activities:

Associate Editor, The Journal of Communication, January 1959-December 1961.
Abstracter, Sociological Abstracts, 1959-1962.
Section Chairman, Annual Meeting, National Society for the Study of Communication, December 1961.

Experience:

Research - Research assistant, Department of Rural Sociology, University of Wisconsin, project on population changes in state of Wisconsin, January 1953-June 1954.

Research Assistant, Department of Sociology, University of Wisconsin, July 1954-June 1955, project on factors affecting group satisfaction in student committees.

Research Vita (continued)

Assisted in the design and administration of city-wide survey for Wisconsin State Journal, Fall, 1954, project on reader characteristics and item preferences with Madison newspapers.

Project assistant, University of Wisconsin, Television Laboratory June 1956-September 1956, project on laboratory techniques for predicting responses to television programs.

Partner in private consulting firm, Wisconsin Research Associates 1955-1957 doing work for radio, television, and advertising agencies.

Project associate, University of Wisconsin, Extension Division, evaluation of "An Experiment in Liberal Education," June-September, 1959.

Research Director, survey of Dallas residential preferences for contracting firm, 1962.

Research consultant, Department of Psychiatry, University of Texas, Southwestern Medical School, evaluating effectiveness of West Dallas Community Centers, June - August, 1963.

Research Associate, Department of Anthropology, Cornell University, Summer 1966.

Teaching - Teaching assistant, University of Wisconsin, September 1952-January 1954.

Instructor, Department of Sociology, University of Wisconsin Extension Division, September 1955-June 1958.

Instructor, Department of Sociology, Southern Methodist University, September 1958-September 1961.
Assistant Professor, October 1961-1964.

Visiting lecturer, Division of Social Science, Bennington College, 1963-1964.

Assistant Professor, Department of Sociology, Cornell University, 1964-1965.

Associate Professor, Department of Sociology, Tulane University, 1965-

Articles and Papers:

Research Bulletin No. 7, From Script to Production: A Study in Prediction. (in collaboration with staff) A monograph (1956) published by the University of Wisconsin Television Laboratory.

"Female Perceptions of Campus Courtship Phases" Annual Meeting, Southwest Sociological Society, 1959.

"Two Aspects of Subjective Probability Among College Students" The Journal of Communication, March 1959, (with Orville G. Brim).

"Role Clarity and Personal Satisfaction" Annual Meeting, American Sociological Association, 1959.

Research Vita

"Group Membership, Personal Characteristics, and the Evaluation of Persons" Annual Meeting, Southwest Sociological Society, 1960 (with Bruce Pringle).

"Predictability and Morale in a Group Situation" Annual Meeting, Southwest Sociological Society, 1961.

"Campus Attitudes on Desegregation" Annual Meeting, Southern Sociological Society, 1961 (with Morton King).

"Cognitive Simplicity and Prejudice" Social Forces, March, 1962.

"Probability of Attainment and Goal-Setting Decisions: An Experimental Study," Annual Meeting, Texas Academy of Science, December, 1962.

"Patterns of Urban Upper Class Housing Preferences," Annual Meeting, Southwestern Sociological Society, April, 1963.

"Community Centers and Influence on Values of Working Class Youth" Monograph, with Harry Martin for Dallas United Community Centers, October, 1963.

"Cognitive Simplicity and Out-Group Stereotyping" Social Forces, March, 1964.

"Mass Media and Moral Values" in The Church, Entertainment Media, and Moral Values, edited by Donald Kuhn, Methodist Television, Radio and Film Commission. (in press)

"Status affinity and background diversity" Sociological Quarterly, December, 1967 (with John Roberts).

'Judged Displays" El Palacio, December 1967 (with John Roberts).

"Response to kinesic patternings and semantic differentiation of significant others." Proceedings: Tenth International Congress of Linguists, Bucharest, Rumania, 1967. (in press)

Papers Completed and in Circulation:

"Structural Effects on Perception of Order and Morale."

"Perception of Role Conformity, Predictability, and Morale."

"Cognitive Style and Attitudes toward Capital Punishment."

#

Research Vita

C. Dr. Thomas Lee Mentzer
Investigator (Summer)

Department of Psychology, Newcomb College, Tulane University
New Orleans, Louisiana 70118

Birth: August 25, 1933

Marital Status: Married, 2 children

Education:

Educated in Public Schools of Lebanon, Pennsylvania.
Graduated Lebanon High School, 1951.
Military Service, U.S. Navy, 1951-54. Completed course at U.S. Navy School of Music, 1952.
B.S., The Pennsylvania State University, 1958, major experimental psychology.
M.S., Brown University, 1960.
Ph.D., Brown University, 1963, thesis supervisor, Donald S. Blough.

Experience:

Research assistant, summer of 1958, on O.N.R. research contract to.Dr. Alex J. Slivinske, Pennsylvania State University.

Research assistant, 1958-59, to Dr. Donald S. Blough, Brown University.
U.S.P.H.S. Predoctoral Research Fellow, 1959-62.
Assistant Professor of Psychology, Newcomb College, Tulane University, 1962 - present.

Research Grant, U.S.P.H.S., $2,500, 1963-64.
Research Grant, National Science Foundation, $38,000. "Stimulus control of behavior, a psychophysical study." 1966-68.

Publications:

Comparison of three mehtods for obtaining psychophysical thresholds from pigeons. Journal of Comparative and Physiological Psychology, 1966, 61, 96-101.

Early vs. late introduction of stimuli in psychophysical discriminations by pigeons. Psychonomic Science, in press.

Papers Presented at Professional Meetings:

Comparison of three methods for obtaining psychophysical thresholds from pigeons. American Psychological Association Philadelphia, 1963.
Retention of difficult discriminations by pigeons after short rest periods. Eastern Psychological Assn., New York City, 1963.

The role of errors in psychophysical discriminations by pigeons. American Psychological Assn., New York City, 1966.

A species-specific factor in the stimulus, control of behavior, Southwestern Psychological Assn., Houston, 1967 (Awarded Publisher's Prize for Research Excellence).

#

Research Vita

D. Dr. Wesley Jay Hansche
Project II

Department of Psychology, Tulane University
New Orleans, Louisiana 70118

Age: 38

Marital Status: Married

Education:

University of Wisconsin, B.S., 1955
University of Wisconsin, M.S., 1957
University of Wisconsin, Ph.D., 1959

Experience:

Lecturer and Assistant Professor, Psychology Department, Tulane University since 1959.

Primary interests and experience and teaching in the fields of statistics and experimental design, computer applications in behavioral research, and psychological testing.

Publications:

Three determinants of the level of aspiration, J. of Abn. Soc. Psych., Vol. 53, July 1956, (with J. C. Gilchrist)

Onset versus termination of a stimulus as the CS in eyelid conditioning, J. of Exp. Psych., Vol. 59, 1960, (with David A. Grant)

Manifestations of a Recessive Gene for Microcephaly in a Population Isolate, J. Genet. hum. 13: 52-59, 1964 (with H. Warner Kloepfer, and Ralph V. Platou)

A comparison of instrumental reward and avoidance training with classical reinforcement technique in conditioning the eyelid response, Psychon. Sci., 1965 (with David A. Grant).

RESEARCH VITA

Field Coordinators

Research Supervisors

Research Assistants

Test Administrators

E. 1. Pat Anthony Federico
Field Coordinator 7/1-7/31/68
Research Supervisor

Age: 26

Education: B.A., St. Thomas University, 1964
M.S., Tulane University, 1967
Completed coursework for Ph.D. in Psychology at Tulane University, 1968.

Experience: Supervisor at Juvenile Home, Houston, Texas, 1965
Research Assistant to Dr. J.L. Sulzer, summer, 1966
Graduate teaching assistant, Tulane University, 1965-66

#

2. James W. McDaniel
Field Coordinator 7/1-8/31/68

Age: 26

Education: B.A., Rice University, Houston, Texas, 1965
M.S., Tulane University, 1967

Experience: Graduate teaching assistant, Tulane University, 1965-68
Clerk, Production Control, General Electric, MTSD, Summer 1965
Clerk, Cost Reduction, General Electric, MTSD, Summer 1966, Summer 1967

#

F. Gail Miller Hinkel
Research Supervisor 7/1-8/31/68

Age: 24

Education: B.A., Baylor University, 1965
M.S., Tulane University, 1968
12 additional hours of Ph.D. coursework

Experience: Research Assistant to Dr. J.L. Sulzer, Summer 1966
Graduate Teaching Assistant, Tulane University, 1965-68
Research in clinical-social psychology sponsored by NSF, under Dr. J.L. Sulzer, 1966-68.

#

Research Vita (continued)

G. 1. Susan Alto
Test Administrator 7/1-7/31/68

Age: 21

Education: B.A., Newcomb College (to be awarded June, 1969)

Experience: Research Assistant to Dr. J.L. Sulzer, 1967-68
Trained for testing with K I T by Dr. W. J. Hansche of Tulane University

#

2. Susan Ring Andrews
Research Assistant 3/1-6/30/68
Test Administrator 8/1-8/31/68

Age: 23

Education: B.A., Newcomb College, 1965
M.S., Tulane University, 1968

Experience: Graduate teaching assistant, Psychology Department, Tulane University, 1965-1967
Brief testing in Project Head Start, Summer, 1966
Research Assistant, OEO project, Dr. Koenig, Spring, 1968.

#

3. Janet Blumenthal
Test Administrator 8/1-8/31/68

Age: 25

Education: B.A., Jackson College, 1965
Completed coursework for Ph.D. at University of Chicago, 1965-1968

Experience: Committee on Human Development
Head Start Research on creativity and intelligence, University of Chicago, 1967.

#

4. Morris Burka
Research Assistant
Test Administrator 7/1-7/31/68

Age: 23

Education: B.A., Yale University, 1967

Experience: Head Start Recruiter, May, 1968
Ran a neighborhood camp on Saturdays for children from 18 months-to 12 years old, March-June 1968.

Research Vita

G. 5. Ura Jean Calhoun
Research Assistant
Test Administrator 7/1-7/31/68

Age: 23

Education: B.A., Southern University, 1965
M.S., Tulane University, 1967
Completed coursework for Ph.D. in Psychology
at Tulane University, 1968

Experience: Probation Attendant, San Fernando Valley Juvenile Hall
Research Assistant, OEO Project, Summer 1966, Dr. Irion
Research Assistant, Project Pre-Kindergarten Evaluation,
Summer 1966, Dr. Helene Gerall.

#

6. Manuel Carballo
Research Assistant 8/1-8/31/68

Age: 27

Education: B.A., Leeds University, England, 1965
Ph.D., Tulane University, 1968, Sociology

Experience: Research assistant in social psychology, Tulane
University Department of Sociology, 1965-1968.

#

7. Ronald Allen Goebel
Research Supervisor 7/1-8/31/68
Research Assistant

Age: 24

Education: B.S., Tulane University, 1966
M.S., Tulane University, 1968
Completed coursework for Ph.D. in Psychology at
Tulane University, 1968

Experience: Research Assistant, OEO Head Start Free Association
Project under Dr. Irion, Summer 1967.
Graduate teaching assistant, Tulane University, 1966-1968.

#

8. Lorna Gail Gougis
Research Assistant 4/1-8/31/68
Test Administrator 7/1-7/31/68

Age: 20

Education: B.A., Newcomb College, to be awarded June 1969.

Research Vita

G. 8. Lorna Gail Gougis (continued)

Experience: Research Assistant during 1967 for Education
Improvement Project

Trained to administer K I T intelligence test by
Dr. W. J. Hansche of Tulane University.

9. [illegible]

#

9. Linda Lagron Lee
Research Assistant 8/1-8/31/68

Age: 26

Education: Sociology major in college.

#

10. Anna Marie Napoli
Research Assistant
Test Administrator 7/1-7/31/68

Age: 25

Education: B.A., Queens College, 1965
M.S., Tulane University, 1967
Completed coursework for the Ph.D. at Tulane University in Psychology

Experience: Test Administrator for research with pre-kindergarten children in New Orleans schools, under Dr. Helene Gerall of Tulane University, Summer 1966
Graduate teaching assistant, Tulane University, 1965-68
OEO Head Start testing under Dr. Jones, Spring and Summer 1967
OEO Head Start Free Association Project under Dr. Irion, Summer 1967.

#

11. Karen Lois Phillips
Test Administrator 8/1-8/31/68

Age: 22

Education: B.S., Iowa State University, 1968

Experience: Cabin counselor for underpriviliged boys, United Charities of Chicago
Informal recreation leader, neighborhood houses, Chicago, Illinois

#

Research Vita

G. 12. Ute Preilowski
Research Assistant 6/1-7/31/68

Age: 24

Education: B.S., (Vordiplom), Phillips University, Germany, 1967
One year graduate study in Psychology, Tulane
University, 1968

Experience: Research assistant to Dr. J.L. Sulzer, Spring 1968
Research assistant, Phillips University, 1964-1966

#

13. Cherrie Lou Wood
Research Assistant 8/1-8/31/68

Age: 24

Education: Montgomery High, Montgomery, Texas, 1950-1962
Austin College, Sherman, Texas, 1962-1966, B.A.,
Major: Elementary Education
Minor: History

Experience: Two years at University of Texas Medical Branch in Galveston, Texas; one in child psychiatry and one in psychiatric research, administering experimental tests, elêmentary statistics, library research, gathered raw data and compiled for computer center to grogram.

###

PRELIMINARY REPORT

Project I---Moral Judgment in Young Children as a Function of Selected Abilities

Principal Investigators:

Jefferson L. Sulzer, Ph.D.
Newcomb College

Fredrick Koenig, Ph.D.
Tulane University

August 30, 1968

1. ABSTRACT

a. Objectives

(1) To investigate differences in verbal and non-verbal intelligence in approximately 300-400 children enrolled in Operation Head Start in New Orleans.

(2) To investigate the relationship between these factors and the development of moral judgment.

(3) To investigate the relationship between verbal and nonverbal intelligence and the child's nutritional status.

b. Procedures

Subjects were Negro children enrolled in the summer Head Start program in six selected centers in Orleans Parish public schools. This is essentially a morning program of six-weeks duration providing a variety of classroom and field experiences. Testing associated with this project was represented to the child as "some games to play" and was conducted in testing rooms provided by the centers except in one case where children were bussed to a testing site.

Six trained female testers (four Caucasian and two Negro) administered some or all of the following tests to each subject:

(1) Kahn Intelligence Test (KIT),
(2) Van Alystyne Vocabulary Test (VAV),
(3) Moral Judgement Test (MJ),
(4) Color-Form sorting task (CF).

In addition, speech samples were recorded for about one-fourth of the children, usually by the same interviewer.

2. PROBLEM

There has been a recent upsurge of interest in the development of moral judgment which has been facilitated by the construction of instruments and scoring techniques providing operational definitions of criteria originally described by Jean Piaget (1932, 1948) and Fritz Heider (1958). Although studies utilizing these techniques have provided clearcut evidence of a progressive increase in sophisticated moral judgment as a function of chronological age, there has been relatively little research aimed at discovering the specific abilities and learning experiences which might retard or facilitate the growth of sophistication in these judgmental behaviors. Since there is some evidence that lower-class children tend to develop sophistication in moral judgment at a slower rate than middle-class children, there is ample reason to believe that research directed toward the identification of related abilities would have broad theoretical and practical social implications.

A second purpose of the present investigation is frankly exploratory and arose from the desirability of obtaining behavioral measures on children participating in a nutritional survey conducted by medical investigators. This research goal required the addition of several measures to those required for investigation of moral judgment but provided an advantage in the opportunity for more extensive exploration of variables which might be related to intelligence and moral judgment.

3. RELATED RESEARCH

The majority of recent research on moral judgment has been inspired by the theoretical treatment of Jean Piaget (1932), whose position on this topic is largely congruent with his general theory of cognitive development. Piaget maintains that the child between the ages of three to eight tends to see rules in terms of absolutes because hesis insufficiently developed cognitively to distinguish between subjective and objective aspects of his experience and because the child in this age range has a basically egocentric point of view. Piaget also maintains that the young child perceives his parents and other adults as perfectly wise and omniscient figures whose physical behavior and verbal utterances serve as immutable models, rules or standards of conduct. At this stage of development the child is oriented toward the mastering of "rules behavior" in language as well as other social norms. Behaviorally, these cognitive orientations are hypothetically evident in the young child's reluctance to modify an established rule and in his tendency to make moral judgments in terms of such "objective" factors as the magnitude of the outcome and the reaction of authority figures. According to Piaget, moral judgment in nonabsolutist terms does not occur until around age nine, when the child's backlog of social experience produces a higher level of cognitive development.

To demonstrate the empirical validity of his theoretical treatment, Piaget reports sample protocols of Swiss children who were individually interviewed and presented with short stories embodying different types of casual relations and consequences. Although these empirical demonstrations are consistent with Piaget's theoretical characterizations of moral judgment, certain weakensses in his design and method of reporting the data have led American investigators to conduct additional research. Boehm (1963), Johnson (1962), McConnell (1963), Cudrin (1960), Shaw and Sulzer (1964), and Crowley (1968) have all reported relevant data which have provided support for some of Piaget's theoretical views. However, the most comprehensive investigation of moral judgment based upon Piaget's formulation has been conducted by Lawrence Kohlberg (1963, 1966).

Kohlberg's work has focused on the use of hypothetical situations presenting the subjects with stories which contain moral dilemmas. The subjects make moral judgments in response to these stories and explain the basis for their responses. Examining the responses with a rather intensive theme-content analysis, Kohlberg arrived at a somewhat different pattern of moral development than that of Piaget. While Piaget was apparently accurate in his belief that moral judgment went through stages, Kohlberg's finding indicated that Piaget's distinction between heteronomous and autonomous morality was insufficiently precise. What eventually resulted from Kohlberg's analysis was a six-fold typology of moral judgments, representing six sequential and transitive developmental levels, The sequence of these levels seem to be a general characteristic of development, independent of culture and subculture; however, there are variations between cultures in the chronological age at which a particular level occurs. Turiel (1966) has experimentally validated the sequentiality of these stages, In addition to the sequentiality of these stages, the moral judgments that accompany a particular stage are consistent from one situation to another, at least as tested by responses to various hypothetical "moral dilemma" stories.

The other major research approach to moral judgment has been based upon Fritz Heider's (1944, 1958) treatment of attribution of responsibility. Heider described five "levels" in attribution of responsibility (AR) which theoretically respresent a progression from relatively primitive to relatively sophisticated cognitive processes. At the first level (Association), the preceiver holds another person responsible for any outcome with which he is associated, in spite of the fact that he did not cause the event. At the second level (Commission), a person is held responsible for any event he produced by his actions regardless of his apparent intentions. At the third level (Foreseeability), the person is held responsible for any foreseeable event he causes, whether or not it was intended. At the fourth level (intentionality), responsibility is attributed for any foreseeable, intentionally-produced outcome and at the fifth level (Justification), responsibility attributed to the agent is deminished when his action is perceived as justified by extenuating circumstances or acceptable motives.

On the assumption that Heider's descriptions identified the information which would be a sufficient basis for attribution for a person operating at each level of sophistication, Shaw and Sulzer (1964), constructed an instrument which has provided a means of comparing the AR patterns of subjects drawn from different populations. In support of Heider's contention, they found that AR by adult subjects is more "sophisticated" than AR by children, i.e., AR by adults progressively increased from levels I to IV while AR by children was relatively undifferentiated over levels II through V. More comprehensive comparisons with improved instruments have provided evidence that the growth of sophisticated attribution proceeds at different rates in different populations. Particularly relevant to the present proposal, is a finding by Sulzer and Shaw (1967) that Negro second-graders are less sophisticated than a comparable group of White children. Other unpublished studies by these investigators have replicated this finding but have not permitted definite identification of the underlying causal factors. One of the stumbling blocks resides in the fact that the Levels in Responsibility Attribution stories are apparently not useable with subjects of preschool ages during which the critical learning experiences are presumed to occur. That learning experiences can produce more mature judgment is supported by results reported by Bandura and McDonald (1963) and Crowley (1968).

Several documented differences between Negro and White school children provide possible explanations of the observed differences in their moral judgments. One possibility is that Negroes and Whites undergo different socialization experiences related to moral judgment. In support of this, Kohn (1950) found that middle-class parents were more likely to decide on an appropriate punishment on the basis of the judged intent behind a misdeed while lower-class parents were more likely to punish in keeping with the seriousness of outcome (i.e., the amount of damage done). Kohn and others have also reported that lower-class parents make greater use of physical punishment while middle-class more frequently utilize withdrawal of privileges or affection. In so far as these techniques differ in effectiveness or encourage the child to attend different aspects of misbehavior they might account for the observed differences in responsivity to different factors involved in moral judgment.

From a related point of view, differences in level of moral development are partly determined by the way norms are presented to the child. Researchers in the field of child rearing tend to see two basic modes of rule training. Miller and Swanson (1960) refer to the two modes as arbitrary and explaining. Hess and Shipman (1965) use the terms imperative and instructive, while Elder makes a distinction between power legitimation and non-legitimation (Elder,1963). It is quite likely that the explaining technique would produce a more complex set of norm-related concepts; it is unlikely that the two training techniques are equally effective.

In spite of the attractiveness and theoretical richness of explaining different moral orientations in terms of socialization experiences, a more parsimonious, but related, possibility must first be evaluated, i.e. that differences in moral judgment might reflect differences in specific abilities. Although Sulzer and Shaw's reported difference between Negro and White children was not apparently due to differences in general intelligence, several studies indicated that there is a positive relationship between moral sophistication and ability measures. For example, Kohlberg reported a significant positive correlation (r = .31) between moral judgment and IG and Sulzer (1967 found significant correlations between responsibility attribution and reading ability. Several considerations strongly suggest that differences in verbal ability might be related to sophistication in moral judgment.

(1) Sophisticated moral judgment involves the ability to cognize behavior in terms of relatively abstract concepts.

(2) Middle-class parents, whose children appear to show greater sophistication in moral judgments, are more articulate and interact with their children verbally more than lower-class parents.

(3) The materials used to measure level of moral judgment are essentially verbal. Sulzer and Shaw present their subjects with short stories but require S to indicate AR on a rating scale. Piaget's and Kohlberg's approaches make use of story materials and define the subject's level of sophistication in terms of his verbal responses to these materials. Greater verbal responsivity would thus seem to increase a child's chance of obtaining a "higher" score; in addition greater verbal facility itself might be related to the use of more complex concepts.

Bernstein (1962) has observed that the class differences in socialization procedures may account for speech differences in the social classes. Using a legitimation or instructive approach requires language patterns that convey cause and effect, use of abstractions and appeals that have fairly elaborate of syntactic complexity used by the parent and the level of syntactic development achieved by the child affect the acquisition and understanding of higher levels of moral development. Preliminary investigation into the problem of syntactic complexity and moral judgment in elementary school children is currently being done by Margaret Robbins and Fredrick Koenig.

The theoretical and empirical considerations outlined above establish the sequential developmental nature of moral judgment. While previous research has pointed to the consistency of the order at which the stages of moral development occur, it is also important that there are differences in the rate of moral development, i.e., the age at which different stages appear in different children. These rates may vary between cultures and social classes within the same culture. Differences in the conceptual, linguistic, and cognitive aspects of the child's socialization experience should result in differences in rate of moral development. This can be a function of language sophistication, reflected in abilities to analyze situations and in the verbal facility requisite to responding in the testing situation itself.

4. EXPERIMENTAL PROCEDURES

Subjects.

Over three hundred male and female four and five year old Negro children, enrolled in Project Head Start, summer 1968, were given some or all of the tests and tasks described below, with informed consent of parents. Children were tested at six Head Start Centers in Orleans Parish. The selected Centers and the number of children at each center on whom the various measures were taken is entered in Table 1. It is obvious that the entire set of measures was obtained on a relatively small percentage of children. This percentage, varied from school to school, largely because of differences in the locations of testing rooms and traffic control. Generally, the children were available only for one session of approximately one-and a half hours. The short duration of the summer program (mornings only for six weeks) made it virtually impossible to schedule a second session for children if we were to maximize overlap with the nutrition survey. In this single session, testing was occasionally delayed by a child's shyness or inattention; when a child appeared bored, tired, or excessively distracted, testing was terminated.

Nutritional status was determined on the basis of analysis of blood samples drawn from each child during a physical examination conducted in the research laboratory of the Department of Psychology at Newcomb College during the last three weeks of the Head Start program. Personnel of the Tulane University School of Medicine under the direction of Walter Unglaub, M.D. were responsible for this physical examination and the related laboratory work.

Testing Instruments and Procedures.

Six female graduate and undergraduate psychology majors (four Caucasians and two Negroes) were trained in the conduct of each test and given experience with subjects drawn from the same general population as the target subjects. Throughout the testing program an attempt was made to have each tester give all of the following tests to children unsystematically assigned to them:

(1) Kahn Intelligence Test (KIT),
(2) Van Alystyne Vocabulary Test (VAV),
(3) Moral Judgment Test (MJ),
(4) Color-Form Sorting Task.

Details and content of each test will be described, below.

Kahn Intelligence Test. The Kahn Intelligence Test (KIT) has been fully described by Kahn (1960) and is commercially available from Psychological Test Specialists. The KIT was selected because it was described as an experimental measure of intelligence which is relatively independent of cultural, educational, and verbal requirements. It was chosen over such performance tests as the Leiter because the KIT is less expensive, and requires less training and less time to administer. Certain potential weaknesses in content and directions for administration were noticed in the training phase but practical considerations made it advisable to continue with the KIT rather than delaying the start of the project. In this way, it was hoped that new norms and procedural solutions might be produced. The KIT manual reports a reliability coefficient of .94 and moderately positive correlation (.74) with the 1937 Stanford Binet. However, no norms are established for the population represented in the present study.

The scale used has six items of grades difficulty at all age levels in six months steps from infancy to fourteen years of age. It provides measures of MA and IQ reflecting two months MA credit for each item correct. In the present case, testing was terminated when a subject failed to pass all the items at a given age level.

Van Alstyne Picture Vocabulary Test. The Van Alystyne Picture Vocabulary Test is commercially available from Harcourt, Brace and World. The test is composed of sets of cards each bearing four realistic line drawings of objects or figures. The subject's attention is drawn to the pictures and he is asked to point to a specific item, e.g. the box, the barrel, the girl who is drinking, etc. The cards are divided into two sets of odd-and even-numbered cards; in the present study one of the two complete sets was presented first, a short rest was allowed, and then the other set was presented, always in the indicated numerical sequence. A definite response was required for each item without exerting pressure upon the child. If the child said he did not know or refused to respond, a question mark was recorded for that item. If a child appeared to be responding erratically or seemed too restless, these observations were recorded and testing was terminated. Only complete records were scored. Scoring was based upon the total number of correct identifications made by the child, and yielded MA and IQ equivalent measures, based upon established norms.

Moral Judgment Test. The Moral Judgment test used was devised specifically for this investigation because existing materials were deemed unsuitable for testing preschool children. For example, in most test, the stories are too complex or too long and some other instruments require verbal responses or rating responses based upon concepts with which the preschool child is unlikely to be familiar.

Following Piaget's (1932) general distinction between objective and subjective bases of moral judgment, twelve stories were produced which vary with regard to the quality of the actor's motive or intention and with respect to the magnitude of the accidentally-produced outcome. The stories were read to the subject in pairs and the subject was asked to indicate which one of the actors did the worse thing and/or which should be punished more (spanked harder) for what he did. While the stories were being read, the examiner displayed cards bearing simple line drawings which illustrated the action. These drawings were designed to help maintain attention and comprehension and to aid the child in indicating his judgment, i.e., he was simply asked to point the boy or girl who ought to be spanked, spanked harder, etc. Six pairs of stories were read in the following combinations (with story A and B first for an equal number of subjects):

Story A			Story B	
Motive	Outcome		Motive	Outcome
Good	Low	vs.	Bad	High
Bad	High	vs.	Bad	Low
Good	High		Good	Low
Bad	High		Good	High
Bad	Low		Good	Low
Good	High		Bad	Low

Confounding between causal structure and outcome and motive variables has been evident in stories used by other researchers, e.g., Piaget, Kohlberg, and Crowley. An attempt was made to avoid this by writing all stories to conform to Heider's third level of responsibility attribution, which Shaw and Sulzer (1964) have labelled "Accidental Commission." For example, the Good-Low versus Bad-High Contrast was as follows:

One day this girl went to the kitchen to warm up some coffee for her father. She turned the fire up too high and it burned the handle on the coffee pot.

This girl's mother told her never to play with the stove. One day she tried to light the stove and the curtains caught fire.

As can be seen in the complete set of materials entered in the Appendix, the good motives generally reflected obedience or intent to help or benefit another while the bad motives reflected disobedience or selfishness. Outcome magnitude was determined by three judges who independently sorted the materials. (A better procedure, which will be used in future studies, would be to obtain these judgments from subjects drawn from target populations.)

The order in which the pairs of stories were read required the child to make increasingly difficult discriminations if he were to display greater sophistication in judgments. One point was scored for each time that the item was selected as worse (or the actor deserving more punishment) which included the outcome with greater magnitude when motive was equated, and each time that the item with the bad motive was selected in all other cases. In effect this places a premium upon judgment based upon "subjective" factors, motive and intention, rather than upon the "objective" factor,outcome magnitude.

Color-Form Sorting Test. The Color-Form Sorting Test was also designed specifically for this study but the general principles were derived from a test described by Goldstein and Scheerer. The test used in the present study made use of a maximum of nine objects to be sorted, three different forms, a triangle, a square, and a circle, in each of three different colors, red, yellow, and blue. (In the Weigl-Goldstein-Scheerer Test green objects and a large-small difference was also included. The primary assumption upon which the test is based is that less sophisticated subjects will sort on the basis of color rather than form when either possibility is present and that even less conceptual sophistication is evidenced by subjects who simply arrange the objects on some non color-form basis when asked to put the objects together which go together.

The various subtests used were as follows:

1. Two blue squares and two yellow triangles were arranged in two columns before the subject. Another blue square and a yellow triangle were placed in the subject's hand as he was told, "Put these where you think they go."

2. Two blue squares and two yellow triangles arranged as before: Subject is given a yellow square and a blue triangle and told, "Now put these where you think they go."

3. All nine objects (red, yellow and blue triangles, circles and squares) are piled up before the subject and he is told to "Put all that are the same together.

4. The subject is given a yellow square and circle and a blue square and circle and given the same instruction.

5. A blue triangle, a yellow triangle, and a blue circle are laid out in a row and the subject was asked "Which of these are the same?"

The examiner recorded the time required to complete each response and also made a diagram showing the placement of each object in each subtest. Scoring was done later from these diagrams. The first subtest was an attempt to train the child to produce a sorting or grouping response and to evaluate his ability to perform on the basis of a grouping principle. The other subtests provided different opportunities for shorts on the basis of color or form.

Suchman (1966) reviews several studies of American and European children which have apparently demonstrated that a transition from color to form preference is a correlate of cognitive growth. In her own study she investigated the color vs. form preference of Moslem Hausa children in West Africa to determine whether this age relationship could be generalized to a population undergoing educational experiences which may not place the same emphasis upon attention to form. In the present investigation, this test was included because it seemed to offer a measure of cognitive growth which requires only minimal verbal ability.

Speech Samples. In addition to the measures described above, speech samples were obtained for about one-fourth of the children. A Negro female interviewer made an attempt to establish rapport with children who had already been tested and then asked them to describe the illustrated activities in a Mother Goose picture book. These interviews were taped and then transcribed in "speech units" (phrases or sentences) for later analysis by others. The major analysis of these units was based upon the speech elements which Bernstein (1962) reported had produced significant social class differences: the total number of adjectives and the total number of pronouns in the last 30 words recorded. In addition, counts were made of the total number of complete sentences in the last ten speech units and the proportion of complex to simple sentences in these units.

Speech samples and socialization made information was obtained from approximately 80 mothers when they accompanied their children to the Newcomb Psychology Lab for the physical examination. During the time that the mothers

2

waited to be bussed back to the Center (two-to-three hours in most cases) they were interviewed by the medical team concerning health and dietary matters. When time permitted they were also asked a set of questions concerning their own reaction and their child's reaction to the Head Start program and were also asked to respond to a newly devised projective instrument designed to obtain information regarding her general mode of socialization.

Ten sentences in response to the major questions in the Head Start interview (What do you think of the Head Start program? How does your child like the program?) were analyzed to yield the following counts: total adjectives, total number of pronouns, proportion of complex to simple verbs, and total number of subordinate clauses. (The frequency of the last element was too low to justify using it as a variable.) Although an attempt was made to interview mothers upon whose children speech samples were already available, in some cases this was not possible. Therefore, to maximize the number upon which subsequent analyses would be based the process was reversed in about twenty cases, i.e., interviewers returned to Centers to obtain speech samples from children whose mothers had been interviewed. However, only data from those samples obtained by the same interviewer are reported here.

Information regarding socialization made was obtained by recording responses to six drawings depicting mother-child interaction. Three of these drawings illustrated some type of misbehavior by the small child, running a tricycle into furniture, stealing, hitting a smaller child, while in other drawings a child asked permission to ride his tricycle in the street, offered to help with the dishes, and brought his mother some flowers. (See Appendix for complete set.) The mother was asked to imagine that the child in the drawing was her own and to tell what she would probably say to the child in each case. These responses were recorded by the interviewers without comment. The responses were later rated in two ways. In one system instances of negative and positive rule expression were noted and these were rated (on a five-point scale) to indicate the degree to which the rule was generalized, i.e., the degree to which the rule transcended the specific situation depicted. For example, a simple command "Don't hit the baby!" was defined as a negative rule with a generalized value of one, while a pronouncement condemning the behavior in abstract terms, "It is wrong for the strong to pick on the weak," received a value of five. In the other scoring system a different judge read the response to each picture and classified the reaction as displaying an Arbitrary, Explaining, or Mixed mode of child training or scoialization. An Arbitrary mode was defined as a case in which amother told her child to refrain from some behavior without giving reasons: in an Explaining mode she gave the child a fairly full (although not necessarily middle-class) reason, e.g., "don't steal because if you do the police might put you in jail." Responses were classified as Mixed when they could not be classified unequivocally in one of the other two categories.

RESULTS

At present, the analysis of the data gathered in this study is not complete. Although several preliminary analyses have been conducted, the complexity of the hypothesized relationships as well as the practical implications of significant findings strongly cautions against drawing conclusions at this stage.

#

TABLE 1

Number of Children Given Each Test at Each Head Start Center

Center	HCT	KIT	VA	MJ	CF	SS
Henderson	38	41	41	41	0	0
Craig	64	54	54	59	26	11
Hardin	45	47	56	58	17	17
Jones	80	79	75	71	48	43
Lawless	39	38	38	4	23	15
TOTAL	266	259	264	269	114	86

Note: HCT = Hematocrit score
KIT = Kahn Intelligence Test
VA = Van Alstyne Vocabulary Test
MJ = Moral Judgment Test
CF = Color-Form Sorting Test
SS = Speech Sample.

REFERENCES

Bandura, A. and McDonald, F.J. Influence of social reinforcement and the behavior of models in shaping children's moral judgments. Journal of Abnormal and Social Psychology, 1963, 68, 274-281.

Bernstein, B. Social class, linguistic codes, and grammatical elements. Language and Speech, 1962, 5, 221-240.

Boehm, Leonore. The development of conscience of preschool children: a cultural and subcultural comparison. Journal of Social Psychology, 1963, 59, 355-360.

Crowley,P. M. Effect of objectivity of moral-judgment in grade-school children. Journal of Personality and Social Psychology, 1968, 8, 228-232.

Cudrin, J.M. The relationship of chronological age, social behavior and number of siblings to the Piagetian concept of moral judgment development. Unpublished Ph.D. Dissertation, 1964, Dept. of Psychology, University of North Carolina.

Elder, S. Parental power legitimation and its effects on adolescents. Sociometry, 1963, 26, 50.

Hartshorne, H. and May, M.A. Studies in the nature of character, New York: Macmillan, 1928.

Heider, F. Social perception and phenomenal causality. Psychological Review, 1944, 51, 358-374.

Hess, R.D. and Shipman, Virginia. Early experience and the socialization of cognitive modes in children. Child Development, 1965, 36, 869-886.

Johnson, R.C. A Study of children's moral judgments. Child Development, 1962, 33, 603-605.

Kohlberg, L. The development of childrens orientations toward a moral order: I Sequence in the development of moral thought, Vita Humana, 1963, 6, 11-33.

Kohlberg, L. The development of moral character and moral ideology. Review of Child Development Research, Vol. I, New York: Russell-Sage, 1964.

Kohlberg, L. The development of children's orientations toward a moral order: II Social experience and the development of childrens orientations to a moral order. Human Development, 1966.

References

McConnell, T.R., Jr. Suggestibility in children as a function of chronological age. Journal of Abnormal and Social Psychology, 1963, 67, 236-239.

Miller, D. and Swanson, G.E. The Changing American Parent, New York: Wiley, 1958.

Piaget, J. The Moral Judgment of the Child. New York: Harcourt, Brace, 1932.

Shaw, M.E. and Sulzer, J.L. An empirical test of Heider's levels in attribution of responsibility. Journal of Abnormal and Social Psychology, 1964, 69, 39-46.

Suchman, R. G. Color-form preference, discriminative accuracy and learning of deaf and hearing children. Child Development, 1966, 37, 439-451.

Suchman, R.G. and Trabasso, T. Color and form preference in young children. Journal of Experimental Child Psychology, 1966, 3, 177-187.

Suchman, R.G. and Trabasso, T. Stimulus preference and cue function in young children's concept attainment. Journal of Experimental Child Psychology, 1966, 3, 188-198.

Sulzer, J.L. Reading ability as a factor in responsibility attribution. Mimeographed Report, Tulane University, 1967.

Turiel, E. An experimental test of sequentiality of developmental stages in the child's moral judgment. Journal of Personality and Social Psychology, 1966, 3, 611-618.

Yngve, V. A model and an hypothesis for language structure. Proceedings of the American Philosophical Society, 1960, 104, 444-466.

#

APPENDIX

Moral Judgment Stories

IA	(GL)	One day this (girl) went to the kitchen to warm up some coffee for (her) father. (She) turned the fire up too high and it burned the handle on the coffee pot.
IB	(BH)	This (girl's) mother told (her) never to play with the stove. One day (she) tried to light the stove and the curtains caught on fire.
IIA	(BH)	This boy's mother told him never to play with the ball in the house. One day when his mother was out he played with the ball anyway and the ball hit his mother's very best lamp and broke it.
IIB	(BL)	This boy's mother told him never to ride his tricycle in the house. One day, when his mother was out, he rode his tricycle anyway and it hit the side of a door and scratched it.
IIIA	(GH)	This girl was helping her mother put the dishes away. While she was doing this she knocked over a whole pile of dishes and they broke
IIIB	(GL)	This girl was helping her mother put the dishes away. While she was doing this she knocked over a glass and it broke.
IVA	(BH)	This girl's mother told her to play with her little brother while she was gone to the store. The girl wanted to watch television so she put her little brother in a high chair where he would not bother her. While she was watching TV, he fell out of the chair and broke his arm.
IVB	(GH)	This girl put her little brother in his high chair so she could give him his food. While she went to get the food, he fell out of the chair and broke his arm.
VA	(BL)	This girl was trying to steal some money from her mother's purse when she knocked a flashlight off the table and the flashlight broke.
VB	(GL)	This girl was helping her mother put away the groceries. When she put some cans on the shelf she knocked a flashlight off and it broke.
VIA	(GH)	This boy was in the house watching TV when his mother called him to come help her bring in the clean clothes from the line. When he opened the door it knocked over a whole bunch of bottles and broke them all over the steps.
VIB	(BL)	This boys' mother told him to stay inside after supper. When she was in the other room he tried to sneak out anyway. When he opened the door it knocked over a coke bottle and broke it.

#

PRELIMINARY PROJECT

Project II--An Investigation of Behavioral Correlates of Nutritional States in Young Children

Principal Investigator:

Wesley J. Hansche, Ph.D.
Tulane University

Research Supervisor:

P. Anthony Federico, M. S.

Tulane University

August 30, 1966

1. ABSTRACT

a. Objectives

(1) To investigate possible behavioral differences between normal and iron-deficient preschool children enrolled in the New Orleans Operation Head Start and the Educational Improvement Project.

(2) To obtain preliminary data concerning the effects of iron deficiency on the following aspects of behavior:

(a) Reaction time.
(b) Endurance.
(c) Achievement Motivation.
(d) Performance on simple learning tasks.
(e) Short-term memory.
(f) Food preferences.

b. Procedures

The following experiments were performed on normal and iron-deficient children from the Head Start and Educational Improvement Projects:

(1) Simple, disjunctive, and competitive reaction times.

(2) Endurance in a simple cranking task.

(3) Performance on a paired-associate sensory-motor learning task and on a test of short-term memory.

(4) Relative preferences for high iron content and low iron content foods.

2. PROBLEM

Although the research literature is replete with nutritional studies, the emphasis by far has been on growth and development, and on the physical consequences of nutritional deficiency. Studies devoted to behavioral deficits arising out of dietary inadequacy are few in number, and of those which do exist, very few concern iron deficiency. Since it appears that iron deficiency is fairly common among lower socioeconomic groups, this research was conducted concerning the behavioral concomitants of iron deficiency.

3. RELATED RESEARCH

Werkman, Shifman and Skelly (1964), studied 28 cases of iron deficiency, all of whom were from disadvantaged homes, and 22 of whom were Negro. They reported that the subjects were illness-prone, experienced feeding difficulties, and manifested more behavior problems than normal subjects. This study is the only known work on the behavioral effects of iron deficiency in humans.

Two experiments have been reported concerning the effects of iron deficiency on learning ability in the rat. Bernhardt (1936) found no difference between iron-deficient rats and controls in maze-learning ability as measured by error scores. There was, however, a +.57 correlation between severity of deficiency and trials to criterion. Scarpell (1959) found that rats who were iron-deficient during gestation but were nursed on normal dams after birth showed no inferiority to controls in maze-learning ability at 42 days of age.

These three studies constitute the entire known literature for iron deficiency effects on behavior. In his summary of the literature on dietary deficiencies and behavior, Brozek (1961, p. 83) comments with respect to iron deficiency that:

> The reported behavioral manifestations appear unimpressive in view of the profound neurologic manifestations of mineral deficiencies.

The paucity of data made the formation of research hypotheses quite a difficult task. It seemed likely that iron-deficient children might be less vigorous than normal children and that such a difference, if it did exist, might manifest itself further in such areas as lowered motivation, reactivity, attentiveness, vigilence, and perhaps, learning. Some slight support for these hypotheses is provided by two experiments which were concerned with dietary deficiencies other than iron. Tuttle, et al, (1949) found that reduction of thiamine intake to 140 mcg. per day resulted in measurable deficits in reaction time with well-practiced, otherwise normal adults. Also, Valentiner (1943) found that mentally deficient children who had been on diets deficient in vitamin B-complex showed no effects of B-enrichment on physical fitigue. The subjects did improve, however, on mental tasks (letter-cancellation and color-naming). The enriched diet caused increases in accuracy scores and rate of performance, and fatigue onset was delayed.

These fragments of data suggested that effects of iron deficiency might be sought in experiments stressing reactivity and attentiveness, learning ability, and motivation. Of these topics, the area of motivation is perhaps the most complex and the most difficult to study experimentally. The area of motivation which seemed most germane to Project Head Start was that of achievement motivation. Achievement motivation has been studied in children by the use of projective techniques (Winterbottom,1958) and in simple competitive situations. The goals that children set forth for themselves in competitive situations, their so-called "aspiration levels" are a means that one can use to evaluate their achievement motivation. Aspiration levels serve as incentives for performance and are modified by success and failure. It was reported (Boyd, 1952, Gould, 1941) that Negro children often set higher aspiration levels than White children. In view of the fact that goals set by Negro Ss are often unrealistically high, Boyd suggested that their higher aspiration levels may persevere in the face of failure because of stronger defenses against failure.

A final area of investigation concerned the degree to which iron deficiency manifests itself adaptively by somehow increasing the likelihood that the subject will ingest foods rich in iron. It is a well-established fact that humans and animals develop "specific hungers" for those foods which can satisfy bodily deficiencies. The now-classic work with "cafeteria feeding" (Davis, 1928) showed that human infants will select a well-balanced diet from a variety of foods over the long run, although they may be exclusive in their choices on a given day. Animals are capable of satisfying deficiencies by increasing their intake of deficiency-satisfying foods. Rozin (1965) has shown that thiamine-deficient rats prefer high-thiamine to low-thiamine diets and that this preference continues even if the deficiency is corrected just before the preference test is made. The mechanism by which these "specific hungers" come to control behavior is still unknown. One early speculation was that deficient subjects become more sensitive, i.e., the absolute taste threshold decreases, for the needed substance. A telling blow was delivered to this hypothesis by Pfaffman and Bare (1950) who showed that the electro-physiological responses of the rat's tongue was unaffected by adrenalectomy. Adrenolectomized rats do satisfy their salt needs by increasing their intake of salt, but they apparently do not do so by virtue of increased absolute sensitivity to salt. The question of whether or not sensory thresholds do vary according to bodily needs is still somewhat unresolved. Meyer (1952) found that human thresholds for salt, bitter, and sweet substances did not vary during a 34-hour period of total food deprivation. Yensen (1959) has questioned Meyer's finding, however, since he found threshold fluctuations that varied with time of day and with the size of the previous meal. No reports of specific hunger for iron were found in the literature.

Based upon these findings, the following experimental hypotheses were proposed:

(1) Iron-deficient children, low hematocrits, are inferior to normal children on tasks, such as reaction time, which measure speed of reaction, attentiveness, and vigilance.

(2) Iron-deficient children will perform more poorly than normal children in motivational situations. Specifically, they will be less vigorous in an endurance test, and will lose more often than normal children in competitive situations.

(3) Iron-deficient children will show greater preferences for foods high in iron content than normal children.

4. PROCEDURES:

Subjects.

Over three hundred male and female four-and five year old Negro children, enrolled in Project Head Start, summer 1968, were given some or all of the tests and tasks described below, with informed consent of parents.

Children were tested at six Head Start Centers in Orleans Parish. The selected Centers and the number of children at each center on whom the various measures were taken is entered in Table 1. It is obvious that the entire set of measures was obtained on a relatively small percentage of children. This percentage varied from school to school, largely because of differences in the locations of testing rooms and traffic control. Generally, the children were available only for one session of approximately one-and a half hours. The short duration of the summer program (mornings only for six weeks) make it virtually impossible to schedule a second session for children if there was to be maximum overlap with the nutrition survey. In this single session, testing was occasionally delayed by a child's shyness or inattention; when a child appeared bored, tired, or excessively distracted, testing was terminated.

Nutritional status was determined on the basis of analysis of blood samples drawn from each child in a physical examination conducted in the research laboratory of the Department of Psychology at Newcomb College during the last three weeks of the Head Start program. Personnel of the Tulane University School of Medicine under the direction of Walter Unglaub, M.D., were responsible for this physical examination and the related laboratory work.

General Procedures.

Throughout the experiments to be described, several conventions were followed. First of all, subjects were coded so that the experimenters did not know the group membership status of the subjects during the experiments. All subjects were tagged so that they may be addressed informally by name. Secondly, a reinforcer (one cookie) was given to each subject at the end of the reaction time tasks and at the end of the cranking and food preference tasks to reward the child for his cooperation and interest. Finally, to minimize interference with the Head Start Centers, all testing took place between the hours of 9:30-11:30 AM and 1:30-3:00 PM, and each child was given several tests during one testing session.

Individual Tasks and Procedures.

A) Reaction Times

a) Apparatus The apparatus used to measure the various reaction times is depicted in Figure 1. It consisted of four windows, each a square of three one-half inches. These were arranged horizontally across the front panel of the apparatus which faced the subject. In each of these windows there was located a pictorial stimulus which could not be seen until the experimenter closed the proper switch to illuminate that window. The picture in each window from left to right was a tree, a dog, a shoe, and a cat. Below this row of four windows there were two rows each of two light-switch units. Each push panel of these units was a one and one-half inch square window of transparent milk glass of one of four colors: blue (upper left), yellow (upper right), red (lower left), and green (lower right). Being seated facing the rear side of the apparatus, the test administrator had access to control switches. By closing the switches in the proper sequence the tester determined which window and/or light-switch unit would be illuminated. On the rear side of the apparatus there was a counter that incremented each time the window panels of the light-switch units were pushed by the subject. Also visible to the tester was an electric timer that measured the duration from the illumination of a pictorial stimulus window to the pushing of the window panel of the corresponding light-switch unit. When the tester so desired, the timer could be made to measure the duration from the illumination of a light-switch unit to the pushing of the window panel of this unit by the subject.

b) Tasks and Procedures

1. Simple Reaction Simple Reaction time was defined as that latency from the light-on-set of a light-switch unit to the moment the subject pushed the window panel (switch) of the same unit to turn the light off. This time was measured by the electric timer and recorded by the test administrator. Simple reaction time was obtained for five trials and the mean of these five trials was used as the score to reflect the subject's performance on this task.

The instructions read to each subject by the test administrator were: "Can you hold up two fingers... like this? (The tester demonstrates with index fingers of both hands). Good. Place your two fingers here on the table (the tester points). Now, do you see this little window right here? (the tester points to upper left window panel and waits for affirmative response). Watch. (The tester turns light on behind window.) If you want to turn the light off, you push it with your finger...go ahead, push it. Turn the light off. (The tester waits until the subject complies; if the subject is confused the tester demonstrates with the subject's fingers). Isn't that fun? Let's do it again." (The tester gives one or two more trials.)

"Now let's see how fast we can do it, O.K.? As soon as the light comes on you push it with your finger."

2. Disjunctive Reaction Time The procedure adopted to measure disjunctive reaction time was similar to that used to measure simple reaction time, except that two light-switch units were involved. That is, the subject had to concentrate on two light-switch units and to respond by pushing the window panel of that unit in which the light was turned on by the tester. The light push-panels used for this task were the upper left (blue) and upper right (yellow). The time to react to one of the lights by pushing its window panel was recorded; and the mean latency of five trials was the score obtained to measure the subject's performance on this task.

The instructions for disjunctive reaction read to each subject by the tester were: "O.K., let's play a new game. (The tester turns on upper right window). Turn that light off. (After the subject complies), Now, if the light comes on here (the tester points to upper right window) you push it and turn it off, but if the light comes on here (the tester points to upper left window) you push this one and turn it off. O.K.?"

(The tester sets controls and clock. Then:) "Now watch both of these windows (the tester points to both.) And when one of them lights up, you push it as fast as you can. Ready?"

3. Paired Associate Learning and Reaction Time The paired associate learning task involved the contiguous presentation of a pictorial stimulus in one of the four windows in row one with one of four lights found in rows two and three. That is, the subject was trained to associate the appearance of one of four pictures with one of four colored lights. Each subject was given three training trials to learn each of the four associations. The tester recorded the number of erroneous responses the subject made during each training trial while learning each association and the response latency for each training trial. The subject committed an error by pushing the window-panel of a light which was not to be associated with a particular picture. A correct response was indicated to the subject by the on-set of the colored

light which was to be associated with a particular picture. The latency recorded was the time from the appearance of one of the pictorial stimuli to the performance of a correct response by the subject. The scores obtained to reflect the subject's ability on this task were the total number of errors of three training trials per pictorial stimulus and the mean latency of these three trials.

Immediately following the paired associate learning session measures of paired associate reaction time were taken. One pictorial stimulus at a time was presented, and the subject's time to respond by pushing the window-panel of the light correctly associated with it was recorded. The sequence of picture presentation for the ten testing trials across all subjects was window number 3, 2, 4, 1, 2, 3, 1, 4, 4, and 3. Scores obtained for all subjects were the total number of errors committed and the mean latency for the ten testing trials.

Instructions read to each subject for paired associate learning and reaction time were as follows: "O.K., let's play a new game. Do you see these windows up here? They have pictures in them; watch. (The tester lights up all four and asks the subject to name the objects depicted. Then the tester presents the 3rd picture.) "Now let's talk about the shoe. The shoe likes one of these windows down here (the tester points to all four in succession.) Which one of these windows do you think the shoe likes? Point to one of them." (The subject complies by pointing and/or pushing--even if the subject has already pushed a window). If incorrect the tester says: "Push the window and see if it lights up." If it does now the tester says: "Try another window." When the subject pushes the correct window the tester says: "See, it lit up. That means that the shoe likes this window--they're good friends."

The tester makes ready for the practice trials and then says: "Now you look up here at the shoe. And when you see the shoe light up, you push the window that the shoe likes as fast as you can, O.K.?" The subject practices the 3rd window until he reaches a criterion of three trials. The tester then selects 2nd picture (the dog) and uses same criterion; this continues until the subject has practiced all four picture-window relationships.)

The tester reviews all four relationships visually and verbally by turning on the lights which are properly paired and calling them "good friends." Then the tester says: "Now, when any one of the pictures comes on, you find its good friend and push it as fast as you can, O,K.?"

4. Competitive Reaction Time The procedure for competitive reaction time was essentially the same as that for disjunctive reaction time. The only difference was that two subjects were paired against each other in

competition to see who could react the fastest to the onset of one of two lights (the upper left and upper right light-switch units). It was assumed that this competitive game situation would enhance the subject's need for achievement and thus allow it to be measured indirectly. Measures recorded for each subject were the mean latency for each of ten testing trials and the number of errors for each of these trials. A subject committed an error by pushing the incorrect light window-panel. The scores obtained to reflect each subject's performance were the number of trials won in competition and the difference score between the mean latencies of disjunctive reaction time and competitive reaction time.

The instructions read to the subjects for this task were: "Now, you and (name) are going to play a game together. Here's how we play. (Name), if a light comes on in this window (the tester points to upper left) you push it and turn it off, and if a light comes on in this window (upper right) you push it and turn it off. (To other subject): (Name), you do the same thing; if a light comes on in this window....(the tester repeats same instructions). Now, what we're going to do is to see who can be the first one to push his window and turn the light off. Who can be the fastest?" The tester points out the two windows involved to both subjects individually and reminds them to push the window that lights up as fast as they can. Then the tester begins 10 trials and gives KR (i.e., who won each trial) after each trial.

B.) CRANKING

To measure the endurance of all subjects they were given a cranking task to perform. The apparatus used was a new Army surplus "Gibson Girl" radio transmitter model BC-778-D. By turning the crank of this transmitter an electrical voltage was generated by a magneto. The voltage generated was stepped-down by placing a large resistor on the out-put. The out-put voltage that was allowed to pass was sufficient to trip a relay switch. For an incentive to crank the transmitter was placed inside the belly of a painted plywood clown whose eyes and nose were colored lights. It can be seen in Figure 2, that the clown and crank were attached to a bench so that the crank handle would be the proper height, as determined in a pilot study, for four and five year olds. Also, having the transmitter mounted on a bench the tester could hold it steady by putting his weight on the bench while the subject was cranking. The relay switch controlled an electrical timer which measured the total time the subject could keep the clown's eyes and nose lit up. The subject had to crank fast enough to trip the relay switch so that the clown's eyes and nose would light up and to start the electric timer. Each subject's total time of cranking was recorded by the tester who used a stop watch; he also recorded the total number of revolutions that the subject was able to crank. These were counted by the tester who used a hand-held counter.

The instructions read to each subject for this task were: "See this clown. Doesn't he look funny? Look at his eyes and nose. Watch what happens when I turn this crank real fast. They light up!

"Would you like to make the clown light up? O.K. place your hand (the child's preferred hand) on the handle like this, and now place your other hand behind your back like this." (The child is positioned to the right or left of the crank depending upon whether or not the child's preferred hand is the left or right one.)

"Ready? When I tell you to begin, I want you to turn the crank as fast as you can for as long as you can. Use one hand only. You can stop turning the crank whenever you want to. Remember, turn the crank as fast as you can for as long as you can to make the clown light up. Begin."

The starting position of the crank for all children was at "two o'clock" as the child faces the crank. The moment the child begins cranking the tester started his stopwatch. He stopped the watch the moment the child stopped cranking. Consequently, total time cranking was obtained and recorded. The total time the clown's eyes and nose were energized to light by the child's cranking was read off an automatic timer which was connected to the crank's output. The number of revolutions turned by the child during the total time cranking were obtained and recorded by the tester who used a hand-counter.

C. Attentive Recall

The attentive recall task was designed to measure short-term memory. The stimuli used were ten four inches square cards each of which contained one of the following pictures: a purse, a cat, a tree, a house, a bird, scissors, a spoon, a dog, a flower, and a bicycle. The procedure for the task was as follows:

The tester introduced the subject to each card and asked him (her) to name it. If the subject had trouble naming any card, the tester removed it from the deck. The instructions given to each subject were:

"Now we are going to play a game. I am going to show you two cards (the examiner puts two cards on the table). Tell me what each one is. Now I am going to take the cards back and keep one (the examiner picks up cards, shuffles them, and replaces one card on the table. He keeps one card in hand. The subject can see the back of it. The examiner asks, "Which one did I keep?" The subject may name a card on board rather than in the examiner's hand. If he does, the examiner says, "That's right, but which one is in my hand? If the subject gets it correct, the examiner goes to 3 cards, if not, he repeats the procedure, two more times if necessary.

There were at least two trials per level of difficulty which was measured by the number of cards the examiner had displayed in front of the subject at that moment. Whenever the subject recalled properly by identifying what picture-card the examiner kept, the examiner increased by one card the number of cards displayed on the next trial. Each time the subject got two of three responses correct the examiner went to the next level of difficulty. The correctness or incorrectness of each response was recorded in addition to the latency of the response. If a response had a latency of over 30 seconds, it was counted as incorrect. The examiner used a stopwatch to measure this latency; he started the watch when he completed the sentence, "Which one did I keep?"

At each level of difficulty the examiner followed this procedure:

(1) Layed out the appropriate number of cards (two or more)
(2) Asked the subject to name each card
(3) Picked up the cards as soon as the subject finished naming
(4) Shuffled the cards in front of the subject
(5) Picked out at random one card and placed it on the table face down
(6) Layed out the remaining cards
(7) Asked the subject which card he kept and began timing
(8) Picked up and shuffled the cards after the subject responded or 30 seconds elapsed, and
(9) Started another trial.

Scores obtained to reflect the subject's performance on this task were the maximum number of cards with which the subject was able to make a correct response and the subject's response latency on trial two. Mean latency was not used since the number of trials that a subject received varied according to the subject's ability.

D. Food Preferences and Comparisons

To investigate the subject's food preference behavior, fourteen colored pictorial food models were used which are distributed by the National Dairy Counsel. These food pictures were selected to form two equal groups--one of high-iron foods and the other of low-iron foods. Food models composing the high-iron group and the low iron group followed by their iron content per average serving in milligrams were:

HIGH IRON	LOW IRON
Baked Ham (2.21)	Roast Chicken (1.50)
Baked Beans (3.50)	Macaroni & Cheese (1.49)
Luncheon Meat Sandwich (2.55)	American Cheese Sandwich(1.34)
Buttered Greens (1.98)	Green Beans (.38)
Meat Patties (2.72)	Fish (1.00)
Banana (.70)	Apple (.45)
Shreaded Wheat Biscuit (.98)	Ready-to-eat Cereal (.29)

a.) Food Preferences

The examiner had randomly displayed on a small child's table the food pictures. The subject was seated across the table from the examiner who said, "Look at all these pictures of different kinds of food. What I want to know is this--Which one of these foods would you like to eat the most? Point to it. Show it to me, please." (The examiner would then remove this picture from the table and record the child's selection). With the child's first selection removed from the table the examiner said, "Now show me which food you would like to eat the most." After the child pointed to the picture of this food, the examiner also removed it from the table and recorded the child's response. Then the examiner said, "One more time; now show me which food would you like to eat the most." The examiner recorded this and began the food comparison test.

b.) Food Comparisons

This test involved the paired presentation of food models to the subject. These were paired so that each high-iron food appeared with one low-iron food. Each food in the high-iron column was presented with a low-iron food that occupied a corresponding position within the above columns. For example, baked ham was paired with roast chicken, and buttered greens against green beans. This procedure was adopted so that the comparisons would be within food subclasses, not between them. That is, subjects were required to choose between two different kinds of cereals, between two different kinds of green vegetables, and so forth. The order of presentation for the various pairs was random. As each pair was displayed before the subject, the examiner said, "Which one of these foods do you like better? Which one do you like to eat more? Point to it." The examiner then recorded each of the subject's responses. The score derived to reflect the subject's food preference behavior was the total number of high-iron foods chosen in the paired comparisons.

5. RESULTS

Data analysis and the interpretation of the results are not completed at this time. However, preliminary analyses seem to indicate that the only task which differentiates between the low hemotocrits and high hemotocrits is paired-associate learning.

The findings of the complete and detailed data analysis, their interpretations, and suggestions for future research will be discussed in the final report.

#

REFERENCES

Bernhardt, K.S. Phosphorus and iron deficiencies and learning in the rat, J. comp. Psychol., 1936, 22, 269-272.

Boyd, G.F. The levels of aspiration of white and negro children in a non-segregated elementary school. J. Soc. Psychol., 1952,36,191-6.

Brozek, J. Experimental investigations on the effects of dietary deficiencies on animal and human behavior. Vitamins and Harmones, 1961, 19, 43-94.

Crawley, S.L. An experimental investigation of recovery from work. Arch. Psychol. N.Y., 1926, No. 85.

Davis, C.M. Self-selection of diet by newly weaned infants. American J. Dis. Child., 1928, 36, 651-679.

Gould, R. Some sociological determinants of goal strivings. J. Soc. Psychol., 1941, 13, 461-473.

Jones, F.N. A forced-choice method of limits. Amer. J. Psychol. 1956, 69, 672-673.

Meyer, D.F. The stability of human gustatory sensitivity during changes in time of food deprivation. J. comp. Physiol. Psychol., 1952, 45, 373-376.

Pfaffman, C. and Bare, J.K. Gustatory nerve discharges in normal and adrenalectomized rats. J. comp. Physiol. Psychol., 1950, 43, 320-324.

Rozin, P. Specific hunger for thiamine recovery from deficiency and thiamine preference. J. comp, Phys. Psych., 1965.

Scarpelli, E.M. Maternal nutritional deficiency and intelligence of the offspring (thiamine and iron). J. comp. Physio. Psychol., 1959, 52, 536-9.

Tuttle, W.W., Wilson, M., Daum, K., and Rhodes, H. Influence of various levels of thiamine intake on physiology response. J. Amer. Diet. Assoc., 1949, 25, 21-27.

Valentiner, H.L. The effect of vitamin B complex on the fatigability of mentally deficient children. Amer. J. Psychol., 1943,56,381-394.

Werkman, S.L., Shifman, L.,and Skelly, T. Psychosocial correlates of iron deficiency anemia in early childhood. Psychosomatic Medicine, 1964, 26, 125-134.

Winterbottom, M.R. The relation of need for achievement to learning experiences in independence and mastery. In Atkinson,J.W.(Ed.) Motives in fantasy, action and society. N.Y.:Van Nostrand, 1958, pp. 453-478.

References (continued)

Wright, W. R. Some effects of incentives on work and fatigue. Psychol. Rev., 1906, 13, 23-34.

Yensen, R. Some factors affecting taste sensitivity in man. I. Food intake and time of day. Quart. J. of Exp. Psychol., 1959, 11, 221-229.

#

TABLE 1.

Number of Boys and Girls Per Schools That Were Given Each Task

SCHOOL	SEX	FOD	ARC	CRK	SDRT	PART	CRT	NUM
Lawless	Girls	13	13	14	11	11	11	10
	Boys	28	28	28	23	23	23	23
Jones	Girls	48	48	48	37	37	36	36
	Boys	60	60	60	55	55	55	55
Hardin	Girls	36	36	35	23	23	23	22
	Boys	39	40	41	31	31	31	29
Craig & Henderson	Girls	57	57	40	51	51	51	28
	Boys	78	79	76	71	70	69	56
TOTAL GIRLS		154	154	137	122	122	121	96
TOTAL BOYS		205	207	205	180	179	178	163
	N =	359	361	342	302	301	299	259

FOD = Food Preference
ARC = Attentive Recall
CRK = Cranking
SDRT = Simple and Disjunctive Reaction Time
PART = Paired Associated Learning and Reaction Time
CRT = Competitive Reaction Time
NUM = Number of Subjects Per School Who Received All Tasks.

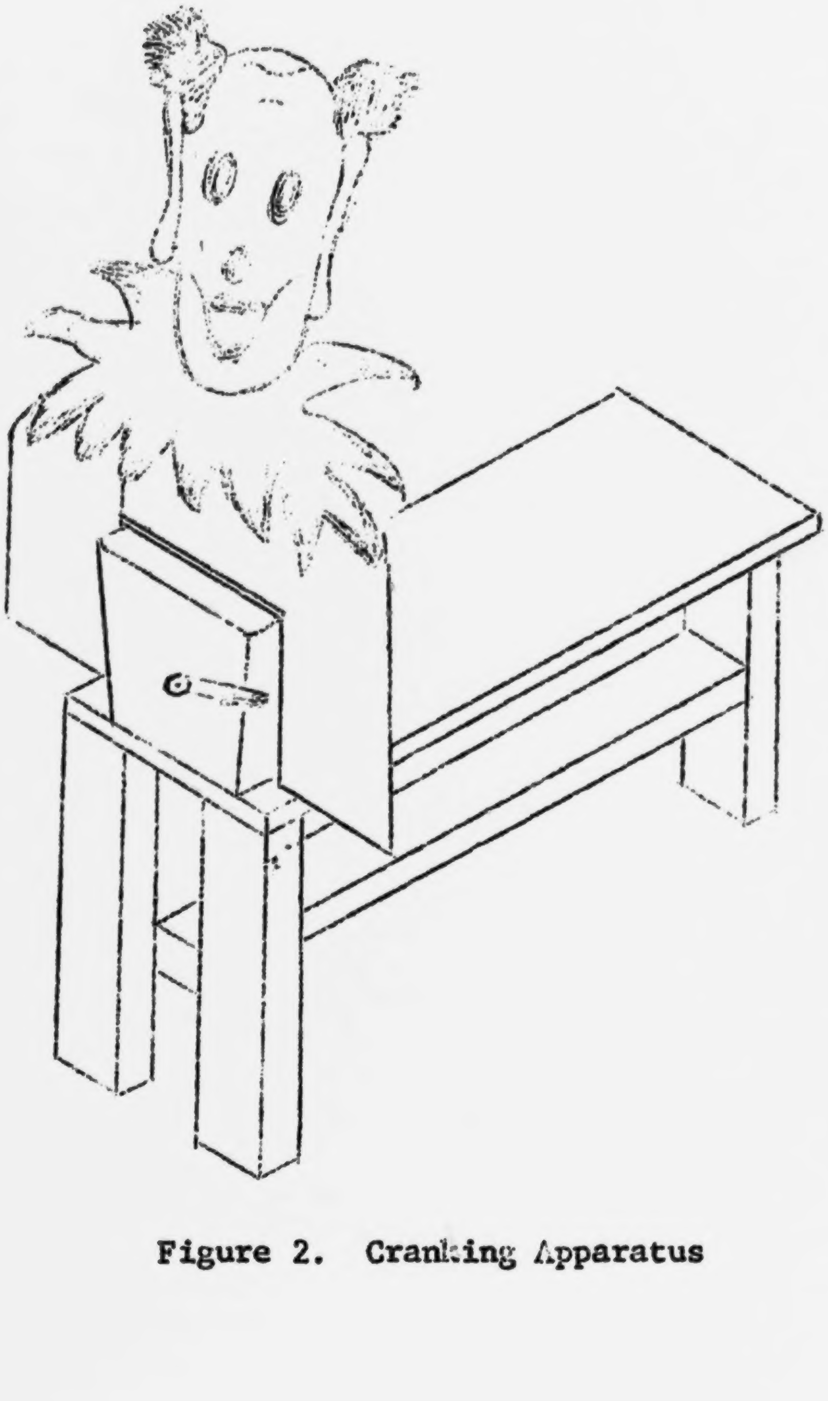

Figure 2. Cranking Apparatus

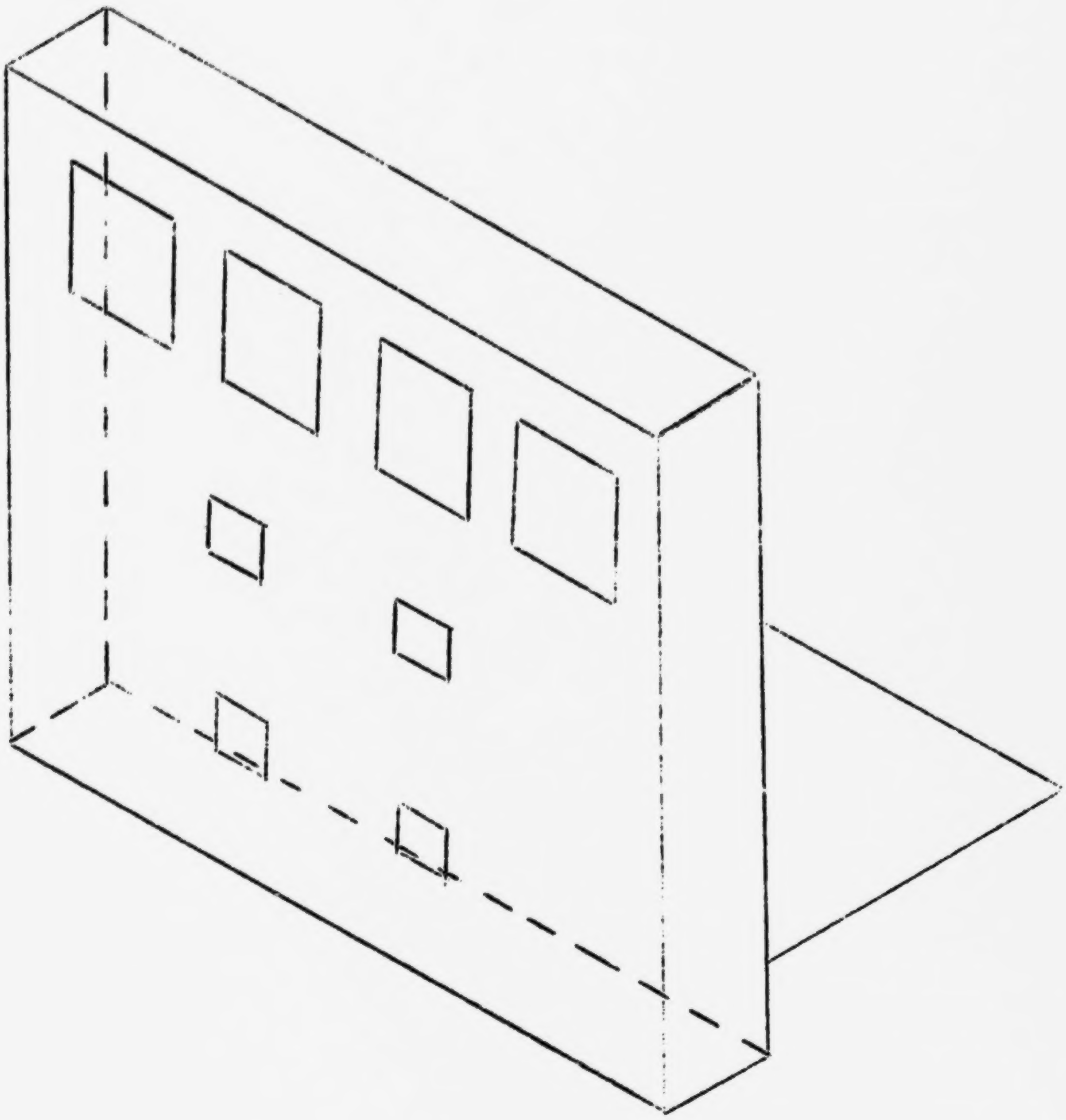

Figure 1. Reaction Time Apparatus